

THE NEW UNIVERSAL ENCYCLOPÆDIA

Introduction by

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VOLUME TWO
DAB-JUXON

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DAB Fish of the flat fish family (*Pleuronectes limanda*). Inhabiting British coast waters and brackish estuaries, it is about 12 in. long, with rough skin, light-brown above and white beneath.

Dabchick Popular name of the little grebe (*podiceps minor*). It has a greenish-black back and red breast, and dives with its young beneath its wings, or on its back. The Caroline, or pied-billed dabchick (*podilymbus podiceps*) is occasionally seen in Britain.

D'Abernon Viscount. English diplomatist. Edgar Vincent was born at Salford, Sussex, Aug. 12, 1857, and educated at Eton. He began his diplomatic career in Turkey. From 1883-89 he was Financial Advisor to the Egyptian Government and from 1889-97 Chairman of the Imperial Ottoman Bank. From 1899 to 1906 he was Unionist M.P. for Exeter, and in 1914 he was made a baron. He was Chairman of the Royal Commission on the resources of the Dominions, and from 1915-20 of the Central Liquor Control Board. From 1920 to 1926, when he was made a viscount, D'Abernon was British ambassador in Berlin. His *Diary* appeared in three volumes in 1929-31.

Dacca City of Bengal. It stands on the Bhuri Ganges in the east of the presidency and is an important centre. From 1905 to 1912 it was the capital of East Bengal and Assam, a province now abolished. It has a number of industries, and here is the university, opened in 1921, for Bengal. Pop. 119,750.

Dace Freshwater fish of the carp family (*Leuciscus vulgaris*). Black-brown, with silvery sides, it is 8 to 9 in. in length, and up to 1 lb. in weight. It swims in shoals in running streams in France, Germany, and southern England, but not in Scotland or Ireland.

Dachshund Breed of dog. It is a distorted hound with short crooked legs, and is employed in Germany in badger hunting. In Britain it is a favourite domestic dog. It has a cylindrical body about 8 in. high at the shoulder, and weighs from 15 to 21 lb. The ears are long and pendulous and the tail tapering. The dog is rough or smooth haired.

Dacia Classical name for the region between the Danube and Carpathians, now part of Rumania and Hungary. Long occupied by independent Thracian tribes, it was subdued in A.D. 107 by Trajan, who created the Roman province of Dacia, separated from Moesia by the Danube. Under pressure from the Goths, Aurelian withdrew southwards into Moesia about A.D. 275, and formed a new province, Dacia Aureliana.

Dacoits Gangs of armed robbers in India. Dacoity was especially rife in the 18th century, and also for many years after the annexation of Upper Burma in 1886, but was at length suppressed.

Dado In classical architecture, the plane faced portion, usually rectangular, of the pedestal between base and cornice. Nowadays it is also the lower portion of wall interiors, with or without a separate capping,

when contrasted in material or design with the wall area above. It developed out of the panelled wainscoting which preceded it.

Daedalus Mythical Athenian sculptor. His name personified the most ancient achievements of sculpture and architecture. He is said to have entered the service of Minos, ruler of Crete, and made the labyrinth which housed the Minotaur. Displeasing Minos, he was imprisoned, but escaped by making wings for himself and Icarus, his son. Icarus flew too near the sun and when the wax fastenings melted, he fell into the sea. Daedalus reached Sicily.

Daffodil Hardy bulbous plant of various species of narcissus of the amaryllis order. They are native to parts of Europe. The British lent lily (*narcissus pseudo-narcissus*), whose solitary nodding flowers have crimped trumpet-shaped coronas, comprises many varieties, including the Tenby daffodil and the robust Spanish daffodil. Gardeners have hybridised hundreds of varieties, but the daffodil still grows wild in some parts of England.

Dagenham Urban district of Essex. It is 3 m. from Barking and 11 from London, on the north side of the Thames and includes Becontree. Here are the English works of the Ford Motor Co. begun in 1928, and docks. Pop. (1931) 89,305.

Daghestan Soviet republic. Lying west of the Caspian Sea, it was set up in 1921 and covers about 13,500 sq. m. Its capital is Makhach-Kala. Pop. 787,000.

Dago Name applied, more or less contemptuously, to Spaniards, Portuguese and Italians in general in the United States. Corrupted from the Spanish name Diego, James, it was used primarily of seamen in mixed crews, but has since been extended ashore to the poorer Italian immigrants.

Dagon National deity of the Philistines. He is referred to in the Old Testament (Judges xvi., 21, 23; I. Samuel v. 1), and was worshipped at Ashdod and Gaza. Possibly he is identifiable with Dagan or Babylonian god of agriculture.

Daguerre Louis Jacques Mandé. French inventor, jointly with J. N. Niepce, of the daguerreotype, and thus a pioneer of the art of photography. Born at Cormeilles, Nov. 1, 1789, he took to operative scene painting and opened a Diorama in Paris in 1822. Collaborating with Niepce, 1829-33, he continued after the latter's death to elaborate the process which bears his name and which was communicated to the Academy of Sciences through Arago in 1839, actually 11 days after the publication of the Talbotype process.

Dahlia Genus of herbaceous plants of the composite order. In 1781 specimens were brought to Europe from Mexico and cultivated by Dahl, a Swedish botanist, whence its name. One species, *D. variabilis*, with yellow discs and dull scarlet rays, has yielded most garden varieties. Cultivated single dahlias derive from *D. coccinea*, and cactus varieties from another species. The new dwarf hybrids are invaluable for borders, as they bloom freely, are sturdy in growth, and do not require supports.

Dahomey French colony in W. Africa. Adjoining Nigeria's western boundary, it runs from the coast northward to other French colonies. Westward lies French Togoland. Its coastline is only 70 m. long; the total area is 62,800 sq. m. Porto Novo is the capital. The chief products are coconuts, kola nuts, oil palms and cotton. Roads and railways have been made. The kingdom was annexed by France in 1894. Pop. 1,057,000.

Dail Eireann House of the legislature of the Irish Free State. The name was given by Sinn Féin men of parliament to the assembly they set up in Dublin in 1919. When the Irish Free State was created by treaty in 1922 the name was given to the Chamber of Deputies which, with the Seanad Eireann, or Senate, constitutes the state legislature. It has a speaker, deputy speaker and clerk of the House. It consists of 153 members, elected by the constituencies of the Free State.

Daimler Gottlieb. German engineer. Born March 19, 1834, he was responsible for some of the inventions that have made the modern motor car and its engine possible, and a well-known make of car is named after him. He also helped to invent the Otto gas engine. Daimler died March 6, 1900.

Dairen Seaport of Manchuria. It stands on the Liaoning peninsula 20 m. E.-N.-E. of Port Arthur. It has a good harbour and is the terminus of the S. Manchurian Rly., which has its headquarters here. It was handed over to Japan in 1905, and has since been the capital of the territory of Kwantung. The port does a considerable trade. Pop. 50,000.

Dairy Place for collecting milk and preparing butter and cheese. In England dairying is supervised by a dairy commissioner under the Minister of Agriculture. The British Dairy Farmers' Association, founded in 1876, holds annual shows, and promoted a world dairy congress in 1923. Its Aylesbury school became the British Dairy Institute which, with the National Dairy Research Institute, is associated with Reading University. Dairy science studies the physiology of milk secretion, bacterial organisms, the food value of forage plants and the improvement of cattle.

DAIRYING AS A CAREER.—See AGRICULTURE.

Dais Platform, particularly the one on which a table stands. In the dining halls of the colleges at Oxford, Cambridge and the Inns of Court, on a table, called the high table, stands on a dais.

Daisy (*Bellis perennis*). Genus of hardy herbaceous perennial plants of the composite order. They are native to Britain and most parts of Europe. Cultivated garden varieties produce pink, red, and white giant double blooms. Marguerites, or ox-eye daisies, are *chrysanthemum leucanthemum*, while the so-called Michaelmas daisies belong to the aster family.

Dakota Name of two states of the United States, north and south. Both are in the central part of the country, and are agricultural areas with a good deal of mountainous land. Each was admitted as a state in 1889, and each sends two senators and three representatives to Congress. North Dakota covers 70,837 sq. m., and South Dakota 77,615 sq. m. Bismarck is the capital

of N. Dakota, which has a population (1930) of 680,845. Pierre is the capital of S. Dakota, which has (1930) 692,849 inhabitants. The Dakotas are a branch of the Sioux Indians.

Dalai Lama Chief pope of Lamaism, the form of Buddhism prevalent in Tibet and Mongolia. Its hierarchy has two heads. One is called Dalai Lama, and lives at Potala, a hill near Lhasa. The other, called Tashi Lama, resides in the convent at To-shi-lun-po. Their powers, religious and civil, are identical, but the Dalai Lama possesses the greater territory.

Dalbeattie Burgh and market town of Kirkcubrightshire. It is situated on Dalbeattie Burn, 5 m. from Castle Douglas and 14 from Dumfries, and its quarries have supplied the granite from which the docks at Liverpool and the Thames Embankment have been constructed. Other industries include concrete works, granite polishing, and dyeing. Pop. (1931) 3011.

Dalgaty Town of New South Wales. Situated on the Snowy River, it is in an agricultural district. It was proposed as a site for the Federal capital, which was, however, built at Canberra. Pop. 4077.

Dalhousie Earl of. Scottish title borne by the family of Ramsay. In 1633 Lord Ramsay was made Earl of Dalhousie, and the title descended to James Andrew, the 9th earl. He succeeded in 1832, and in 1847 was made Governor-General of India, a post he filled until 1856 with great distinction. In 1849 he was made a marquis and he died Dec. 19, 1860. The marquessate became extinct, but the earldom passed to a kinsman.

John William, the 13th earl, was secretary for Scotland in 1880. His elder son became the 14th earl in 1887, and his younger son, Alexander Robert Maule Ramsay, married Patricia, daughter of the Duke of Connaught, in 1918. Dalhousie Castle, the earl's seat, is in Midlothian. His eldest son is called Lord Ramsay. George, the 8th earl (1770-1838), was governor of Nova Scotia; the university at Halifax, founded in 1818, is called Dalhousie University.

Dalkeith Burgh and market town of Midlothian. It is 8 m. to the south-east of Edinburgh, on the L.N.E. Rly. It has a corn market and is a coal raining centre. Pop. (1931) 7502.

Here is Dalkeith Palace, a seat of the Duke of Buccleuch. Built about 1700 it stands in a large park. An earlier castle was one of the seats of the Douglas family. The eldest son of the Duke of Buccleuch is called the Earl of Dalkeith.

Dalmatia Province of Yugo-Slavia. It forms a narrow coastal region, 200 m. long, on the Adriatic between Bosnia-Herzegovina and the sea, and is faced by innumerable islands with extensive fisheries. Occupying 4900 sq. m., it is mostly mountains. There are some good harbours. The chief towns are, Sibiconi, Braza, Cattaro, Spalato and Ragusa. Until 1918 Dalmatia was Austrian territory. In 1920 it was given by treaty to Yugo-Slavia, except the capital, Zara, which was handed over to Italy. Pop. 623,000.

Dalmatian Breed of dog. It is a lightly built pointer, perhaps with original bull terrier crossing, with unwrinkled head and smooth, glossy white coat with

evenly sprinkled black spots. It averages 50-55 lb. in weight.

Dalmatic Liturgical vestment. A wide sleeved tunic became fashionable in Rome and Pope Silvester I. (314-335) bade his clergy wear this instead of the sleeveless garment. In its present embroidered form it is worn by deacons in the Roman Catholic Church and by bishops under the chasuble at mass.

Dalmellington Village of Ayrshire. It is situated on the River Doon, 15 m. from Ayr on the L.M.S. Rly. A Roman road once passed through the parish towards Ayr. Iron working and coal mining are the chief industries in the neighbourhood. Pop. 6185.

Dalmeny Village of Linlithgowshire. It is on the Forth, 10 m. from Edinburgh, on the L.N.E. Rly. There is an old church here and also Dalmeny House, the seat of the Earl of Rosebery, whose eldest son is called Lord Dalmeny.

Dalmuir District on the Clyde, part of the burgh of Clydebank. It stands where Dalmuir Burn falls into the Clyde, and has a station on the L.M.S. line. The important shipbuilding yard here was closed in 1930.

Dalry Town of Ayrshire. It is 23 m. from Glasgow, on the L.M.S. line. In the neighbourhood are iron works and coal mines, and there are textile manufactures in the town. Pop. 7400.

Dalston Suburb of London. To the east of the city, it is in the borough of Hackney. Another Dalston is a village in Cumberland, 4 m. from Carlisle.

Dalton John. English scientist, and one of the greatest of chemists. Born Sept. 6, 1766, he became a schoolmaster at Kendal. In 1793 he became a lecturer at the New College, Manchester, and in 1822 an F.R.S. He died in Manchester, July 27, 1844.

In 1794 Dalton, himself colour blind, published the first scientific account of that defect, often called Daltonism. He is better known, however, for his statement of the Atomic Theory of Matter which postulates that the elements unite in definite proportions by weight, the proportions being determined by the "atomic number." Thus the atomic weight of oxygen being 16, oxygen always combines in units of 16 or multiples of 16.

Dalton laid down also two important laws: (1) The pressure exerted by, and the quantity of, a vapour which saturates a given space are the same for the same temperatures whether the space is a vacuum or is filled with gas. (2) (Dalton's Law) The pressure of a mixture of gases is the sum of the pressures which would be exerted separately by the several constituents if each alone were present.

Dalton-in-Furness Market town and urban district of Lancashire. It is 3 m. from Barrow. Furness Abbey remains are near. In the market place is an old building called Dalton tower. Pop. (1931) 10,338.

Dalton System Educational experiment. It was started in America in 1920 by Miss Helen Parkhurst at the Dalton High School, Massachusetts, and the Children's University School, New York. The system, which aims at a less artificial relationship between the child and its work, is based on the three principles of Freedom, Interaction of Groups, and Individual

Work. The work to be done is assigned to the child, who then attacks it independently of his schoolfellows, being supervised, and assisted if need be, by the teacher. The system has been adopted in some of the British Secondary Schools, and experimented with in certain Elementary Schools.

Dalziel George. British engraver. Born Dec. 1, 1815, he settled in London in 1835, and with his brothers started in business as an engraver. They provided the woodcut illustrations for an edition of *The Waverley Novels*, and did a great deal of work for *Punch*, *The Illustrated London News*, *The Cornhill Magazine* and other periodicals. Later Dalziel became a publisher. He died Aug. 4, 1902.

Dam Term applied to a embankment or barrier of wood or masonry built across a river or lake. It serves to prevent or regulate the flow of water for purposes of irrigation, or for providing water power for generating electricity. Notable dams are those on the Nile at Aswan and Assut, the Great Sennar dam in the Sudan, and the Lloyd's Dam in India.

Damages Sum of money awarded to a successful plaintiff in a civil suit. If a person has been libelled, or injured, or suffered loss on a contract, he brings an action stating the amount of the loss he has suffered. Damages are sometimes claimed in cases of divorce and seduction.

Damascening Term applied to several processes for ornamenting metallic surfaces. The pattern may be deeply engraved with undercut grooves filled with gold or silver thread, and smoothed. Such work, highly developed in the East, was introduced by the Crusaders to Western Europe.

Damascus Capital of Syria. Situated 57 m. S.W. of its port, Beirut, it stands in the Anti-Lebanon foothills. It is a great commercial centre and through the Gate of God pilgrims go on their way to Mecca. Features of the city are the enormous mosque, the huge bazaar and "the street that is called straight" in the Christian quarter.

Damascus belonged in turn to Assyria, Persia and Rome, and from 661-750 was the capital of the Caliphate. In 1516 the Turks captured it and in Oct., 1918, the British entered it. Later, it became part of the new republic of Syria. Pop. about 250,000.

Dame Title of honour, also the legal designation of the wife or widow of a baronet or knight, prefixed to her Christian name and surname. The Order of the British Empire has dames grand cross (G.B.E.), and dames commanders (D.B.E.).

Damien Father. Belgian missionary. Born Jan. 3, 1840, he joined a French religious order having missions in the Pacific, was ordained priest at Honolulu in 1864, and in 1873 volunteered to take spiritual charge of the leper settlement. Though himself stricken with leprosy in 1885, he continued his work until his death, March 28, 1888. Statements made by Dr. Hyde, a Presbyterian minister in Honolulu, after his death, evoked R. L. Stevenson's celebrated letter to Dr. Hyde in defence of Father Damien.

Damietta Town and port of Lower Egypt. Situated on a spit of land between Lake Menzala and the eastern branch of the Nile, about 10 m. from its mouth,

it surpassed Rosetta until the silting of its harbour diverted trade to Port Said and Alexandria. It is served by railway. Damietta was taken by the Crusaders several times. Pop..34,800.

Dammar Hindu name applied to various resins, specifically from coniferous trees. *Dammara orientalis* yields East Indian dammar; *D. australis*, the New Zealand kauri pine, yields Australian dammar. Both, dissolved in turpentine oil, make transparent varnishes. Black and white dammars are Indian resins from non-coniferous trees.

Damocles Favoured courtier of Dionysius, the elder, tyrant of Syracuse. Having declared his patron to be the happiest of mortals, he was invited to a banquet and seated in the place of Dionysius where he observed above his own head a sword hanging by a single hair. The parable was effectively utilized by Cicero and Horace.

Damon Greek hero. Damon and Pythias were two friends. Dionysius of Syracuse condemned the latter to death. Damon took his place and remained imprisoned while Pythias settled his affairs. Pythias honourably returned in time for execution and Dionysius, impressed by their friendship, liberated both.

Damp Humidity. In mining phraseology "firedamp" is marsh gas; mixed with air and exploded, it produces "choke damp" (carbon dioxide). "Black damp"—an accumulation of irrespirable gases, causes lights to burn dimly, while "white damp" is used of carbon monoxide.

In Building.—To avoid the upward passage from the soil of atmospheric vapour through porous building materials such as timber and bricks, a damp course is formed not less than 6 in. above the ground level by horizontal, waterproof bands. These may be of slate, glazed stoneware slabs, sheet lead, asphalt, bituminised felt or similar impervious materials.

Damper Device for moderating the vibration of strings in keyboard instruments. Felt pad damper heads which press upon the strings by springs are connected to damper lifters. All dampers are released simultaneously when the loud, or right, pedal is depressed. This prolongs the vibration of the strings after the release of the keys, and excites others, harmonically related.

A damper is also a door or valve, arranged to diminish the aperture of an air-fue or chimney, thus checking the combustion.

Dampier William, English navigator, buccaneer and hydrographer. Born in Somerset, 1652, he served ashore in the Caribbean, 1674-76. He buccanered in S. American waters, 1679-86, reached Guam in 1686, sighted Australia in 1688, and was, after a dispute with his comrades, marooned on the Nicobar Islands, reaching England in 1691. He explored the Australian coast from Shark's Bay to Dampier Archipelago and discovered New Britain off Dampier Strait. After two privateering expeditions in 1703-07, he piloted Woodes Roger's circumnavigation voyage in 1708-11. He died in March, 1715, leaving two books, *Voyages and Descriptions*, 1690, and *A New Voyage Round the World*, 1697.

Dampier Archipelago, off the N.W. coast of Australia, was a German possession until 1914. It is now governed by Australia under mandate from the League of Nations. Dampier Land is a peninsula of Western Australia.

Damson Fruit of a variety of the cultivated plumtree (*prunus domestica*). Mostly propagated by suckers, they are grown largely in Shropshire, Cheshire, Worcestershire and Kent. Smaller than the plum, and oval-shaped like it, the damson is usually dark blue in colour, but yellow and other colours are grown.

Dan (Signifies Judge). Israelitish tribe named after Jacob's son Dan. Allotted the coastal region W. of Jerusalem, they could not resist the Ammonites without help from Ephraim and Judah. Part of the tribe accordingly migrated N. to Jordan's headwaters, where the ancient city Lulsh was renamed Dan. This became Palestine's northern limit. Hence the phrase "from Dan to Beersheba," in the South.

Danaë In Greek legend, the daughter of Acrisius, King of Argos. She was the mother of Perseus by Zeus, who visited her in a golden shower when, for safety, concealed by Acrisius in a brazen tower. Mother and babe were sent adrift in a sea chest. In classical tragedies and on vase paintings, Danaë personifies the thirsty earth fertilised by rain.

Danaïdes In Greek legend, 50 daughters of Danaus, King of Argos. Promised in marriage to the 50 sons of Aegyptus, they were bidden by their father to slay their husbands on the wedding night; all obeyed except Hypermnestra, who spared her husband, Lynceus. The guilty ones were condemned in Hades to the endless task of pouring water into bottomless pitchers.

Danbury Village of Essex. It is 4 m. from Chelmsford. Danbury Place was the residence of the Bishop of Rochester. On Danbury Hill, one of the highest points in the county, are remains of a Danish encampment. The name means Danes town. Pop. 1200.

Another Danbury is a city of S.W. Connecticut, 65 m. N.E. of New York, famous for the Danbury Hatter's Case (1902) arising out of a trade union boycott.

Dancing Rhythmical steps and movements of the body. Primarily it is a spontaneous expression of strong emotion, religious or social, and is illustrated in the art of the Stone Age. Primitive peoples manifest it variously, as Australian corroborees, Iroquois corn dances, Hawaiian hulas and Asiatic posturings. The sound for measuring the rhythm enhances the emotional appeal, even if it is only mere hand clapping or drum-tapping.

Music advanced with dancing to stimulate the sense of rhythm. The morris dance round a maypole, brought by John of Gaunt from Spain, typifies the homely measures of Tudor England, and survives in the games of modern children. From Spain came the pavane, fandango, bolero and saraband. France, besides elaborating the gavotte, minuet and quadrille, remodelled the central European polka, schottische and waltz.

Dances comprise step dances, by individual performers, as jigs and hornpipes; rounds by pairs, with or without bodily contact; squares by even pairs, as reels and mazurkas; country dances, contre-dances, by indefinite pairs; and cotillions or Germans. American barn dances of negro origin, governed by jazz band syncopation, came to Europe and developed into the two-step, the one-step, and the fox trot. Stage dancing elaborated the latter, both French and Russian.

Dandelion Perennial herb of the compositae order (*taraxacum officinale*). It is native to all temperate and cold regions. The lobed leaves resemble lions' teeth, *dents-de-lion*. Its long black tap root bears numerous hollow flower stalks with solitary heads of yellow strap-shaped florets. The seeds radiate white pappus hairs. The cultivated dandelion is blanchet for salads. Pharmacists prepare taraxacum extract from the dandelion, and its bitter juice forms a rustic remedy for warts.

Dandie Dinmont Breed of dog. Introduced in Teviotdale, largely through a farmer who was a character in *Guy Mannering*, it is a long-backed, short-legged border terrier. With deep muzzle and hazel eyes, the dog is muscular and plucky, averaging 18 lb. The silky coat is slate-blue, pepper or mustard in colour.

Dandolo Enrico. A famous doge of Venice. Born in 1108, he belonged to one of the leading families of the republic. He visited Constantinople as an envoy to the emperor in 1173, but the story that he was blinded is not now believed. In 1192 he was chosen doge. He is chiefly remembered for his heroism in joining the Fourth Crusade in 1201. He added Crete and other districts to Venice and helped to found the Latin kingdom of Constantinople. He died there, June 23, 1205.

Dandruff Excessive dandruff—dead, flaky skin—indicates an infectious disease of the scalp (*Seborrhoea*) very difficult to cure and liable to result in baldness.

Treatment consists in frequent washing of the scalp with bland, pure soap, the removal of all dead, scaly matter, mild antiseptic and oily dressings and massage. Olive oil rubbed into the scalp before washing is helpful in removing the dandruff. Ultra-violet ray treatment is effective, and attention to the general health is of the greatest importance.

Another type of seborrhoea is accompanied by excessive greasiness, but the same general treatment is indicated.

Danegeld Tax imposed in England to provide money to buy off the Danes. For about 60 years, from 991, it was paid from time to time by all landholders to keep the invaders away. William I. revived it in 1084, but it was used for other purposes.

Danelagh Portion of N. and N.-E. England, handed over to the Danes. In 875 by the Treaty of Wedmore, or perhaps in 886, the Danes obtained the E. portion of Mercia, in which many of them had settled, called the Danelagh, and divided from the English section by a line running from London along the Lea to Bedford, then along the Ouse to Watling Street. It included East Anglia, Northumbria, and a part of Mercia. Early in the 10th century it was recovered by the English king.

Danes Name given to the rovers from the Scandinavian countries who raided England before 1066. They are also called Northmen. From 790 to 851 raids were fairly frequent and great damage was done by the invaders, who sailed up the rivers and landed in search of plunder.

In 851 the Danes began to settle in England and Alfred the Great handed over the Danelagh to them.

About 982 the Danish ravages began again. Ethelred the Unready raised money, the Danegeld, to buy them off, and in 1002 he

instigated a massacre. In 1013 Sweyn, King of Denmark, arrived and conquered the N. of England, and in 1016 his son, Canute, became King of England. He reigned until 1035, and his sons, Harold and Hardicanute, until 1042, when the Danish rule ended. Danish settlements may be recognised by the ending *by*, e.g., Grimsby and Formby.

Danewort Popular name for the dwarf elder (*Sambucus ebulus*). It is supposed to have reached Britain with the Danes. A native of Europe, W. Asia, and N. Africa, it is a many-stemmed herb, with pink-tipped white, bell-shaped flowers in flat-topped clusters. They bear small, black globular berries. The whole plant is distinctly purgative.

Daniel Biblical character. He was a Jew, one of the prisoners taken by Nebuchadnezzar to Babylon where he interpreted the king's dreams. This made the Chaldean magicians very angry and Daniel, by hostile strategy, was put into a den of lions from which he came out unhurt. Daniel is mentioned by the prophet Ezekiel as a man of great wisdom.

The Book of Daniel. In the Hebrew Scriptures between Ezra and Esther. External to the Law and the Prophets, it comprises six narrative and six apocalyptic chapters. The original Hebrew, partly lost in antiquity, depends, from li. 4 to vii., upon contemporary Aramaic versions. From its minute familiarity with the events of the second century, modern scholarship dates its production to Antiochus Epiphanes' reign (76-164 B.C.). The anonymous author presumably utilised oral traditions of a Jewish Babylonian captive to hearten his Maccabean countrymen.

Dante Italian poet. Dante Alighieri, the son of a lawyer, was born in Florence in May, 1265. In 1289 he served with the Florentine army in the field and in 1300 he was one of the city magistrates. In 1301 he was sent on an errand to the Pope and, during his absence his party lost power, and he was banished. He died at Ravenna, Sept. 14, 1321, where he is buried.

In life Dante dreamed of a great empire that would bring unity and peace to Italy and Europe. When a child, and once or twice later, Dante met a certain Beatrice, also a child. He never married her but she became for him the personification of love and inspired his muse. In 1292 he married Gemma Donati by whom he had four children.

Dante's immortal work, *La Commedia*, called, in an edition printed 250 years afterwards, *La Divina Commedia*, occupied eighteen years of his life. It describes an imaginary pilgrimage of the human soul, guided by Virgil (natural philosophy) and Beatrice (revealed religion). They descend through hell's three divisions, climb a seven-terraced purgatory into the earthly paradise, where Virgil leaves Beatrice to guide the pilgrims through the heavenly spheres to the Empyrean, the intuitive vision of the Godhead. The *Vita Nuova*, completed in 1300, describes his love for the earthly Beatrice. *De Vulgari Eloquentia* and *De Monarchia* are Latin treatises on Italian poetry and political relations respectively. The London Dante Society was founded in 1899.

Danton Georges Jacques. French revolutionary leader. Born at Arcis-sur-Aube, Oct. 26, 1759, he became a lawyer in Paris. In 1789 he was President of the *Jordeliers* Club and he commanded the National Guard in 1790. He became adminis-



WINTER SPORTS IN SWITZERLAND.—Snow, sunshine and cloud make striking silhouettes of two skiing experts on the Davos Platz. [E.N.A.]

trator of Paris in 1791 and Minister of Justice in 1792. He advocated resistance to the Prussians, using his famous phrase "De l'audace, encore de l'audace et toujours de l'audace," and became one of the leaders of the revolutionary movement. He sat in the convention as a leader of the Mountain, voted for the king's death, was a member of the Committee of Public Safety and of the revolutionary tribunal, but was not willing to follow Robespierre further. Consequently he was arrested and sent to the guillotine, April 6, 1794, after he had made a speech of remarkable power and eloquence to his judges.

Danube The most important river of S. Europe. It rises at Donaueschingen in Baden and flows for 1740 m. through Württemberg, Bavaria, Austria, Hungary, Czechoslovakia and Yugoslavia, marking the Bulgo-Rumanian frontier, and crossing Rumania to the Black Sea. It has over 300 tributaries, and on it are three great capitals, Vienna, Buda-Pest and Belgrade, where it is over 1 m. wide, also Ulm, Regensburg, Passau and other historic towns, Bratislava, the port of Czechoslovakia and Orsova with the Iron Gates. It is navigable by large vessels to Braila and by river barges to Ulm, and is connected with the Rhine by the Main and a system of canals.

The Danube is an international river, passing through six countries, and is governed by an international commission set up in 1919, which meets in Vienna, and looks after the river between Ulm and Braila. For the rest of the river, from Braila to its mouth, a smaller commission was set up in 1856, with members from Great Britain, France, Italy and Rumania.

Danzig City and free state under the League of Nations. It stands on the Vistula, about 4 m. from its mouth, at its junction with the Motlawa, 280 m. N.E. of Berlin. The territory included covers about 754 sq. m. The older parts of the city retain their mediaeval aspect, and the town hall is a magnificent Gothic edifice of the 14th century. There is a good harbour for trade in timber, corn, etc. Poland has the right to use the port.

The free state is governed by a president, a senate and a diet of 120 members elected for 4 years, and there is a commissioner representing the League of Nations. In 1924 the Bank of Danzig was founded and a currency introduced with 25 gulden to the pound sterling. Until 1919 it was the capital of West Prussia. Earlier it was an important member of the Hanseatic League. It has a broadcasting station (453.2 M.; 0.5 kw.). Pop. (1928) 407,517.

Daphne In Greek mythology, the daughter of a river god. Her lover, Leucippus, who pursued her in woman's clothing, was slain by her attendant nymphs at Apollo's behest, and she was changed by her mother into a laurel tree. The sanctuary and cult of Daphne, near Antioch, in Syria, were sacred to Apollo.

Dardanelles Strait between Europe and Asia. It united the Sea of Marmora with the Aegean. The classical Hellespont, it is 47 m. long and 3 or 4 m. broad. At the Marmora end Gallipoli confronts Lapsaki; at the Aegean, Cape Helles confronts Kum Kale. Above its broad outlet the channel narrows, and is protected by castles on both sides. Between Sestos and Abydes, the channel, 1300 yd. wide, was crossed on boat bridges by the armies of Xerxes, 480 B.C., and Alexander, 334 B.C. There, too, it was

swum in legend by Leander, and, in fact, by Byron. The passage was forced by a British fleet in 1807, by Admiral Duckworth. In 1856 the peace of Paris confirmed the right of Turkey to the sole use of the straits by warships.

Dardanelles Campaign. During the Great War, in 1914 and again early in 1915, the forts were bombarded by British and French warships and an attempt to force the straits failed with considerable loss. These operations preceded the landing on the peninsula of Gallipoli. The Treaty of Lausanne of 1923 placed the straits under an international commission. See GALLIPOLI.

Dardanus Mythical ancestor of the Trojans. A son of Zeus and Electra, he was born in Arcadia. He crossed over into Asia Minor where he married a daughter of Teucer and founded Troy. From him the Trojans are called Dardanides. He is connected with Rome through the legend of Aeneas. Another story transferred the ancestors of Dardanus to Italy.

Darent River of Kent. It rises near Westerham and flows to the Thames which it enters near Erith. It is 20 m. long and is navigable to Dartford.

Darent is a village on the river, 2 m. from Dartford. Here a Roman villa and an Anglo-Saxon cemetery have been unearthed. The village has paper mills.

Dar-es-Salaam Seaport of Tanganyika Territory. It has a sheltered harbour which accommodates ocean-going vessels. There are railways to Baguma on Lake Tanganyika, 772 m. away, and a branch from Tabora to Mwanza on Lake Victoria, 235 m. away. With Bagamoyo it is the terminus of caravans from the interior, and handles a growing export trade of sisal hemp, coffee, cotton and minerals. It has a wireless transmitting station. Dar-es-Salaam was the capital of German East Africa before it surrendered to the British in Sept. 1916. Pop. 25,000.

Darfur Province of the Anglo-Egyptian Sudan, and semi-independent kingdom. The greater part of the country is a plateau for two to three thousand feet above sea level. Bordered westward by French Equatorial Africa (Chad colony), the frontier of which was delimited in 1924, southward by the Sudanese province of Bahr-el-Ghazal, and eastward by Kordofan, it occupies 175,000 sq. m. Mostly upland, it is traversed by the Jebel Marra ridge, the watershed between the Chad and Nile basins. The negro and Arab population raises cattle and cereals. Copper and iron are mined. El Fasher is the capital. Pop. 1,500,000.

Dargai Station on the Indian frontier. On the Afghan border of the N.W. province, its railway station, the most northerly in India, terminates a branch from Naushahra. It is on a hill range dominating the Malakand Pass into the Swat valley, and in the Tirah campaign of 1897-98, British troops were forced to abandon it from lack of water, but it was retaken after an unsuccessful first attack, by the Gordon Highlanders, supported by the 2nd Gurkhas and the 3rd Sikhs, Oct. 20, 1897.

Darien Name formerly applied to the neck of land joining Central and S. America, now called the Isthmus of Panama. It was "silent upon a peak in Darien" that Balboa—not Cortez—looked down upon the Pacific in the Gulf of San Miguel in 1513. The

Darien River is now the Tuira. The Serrania del Darien is an Andean range on the Colombian frontier.

The **Darien Scheme** was a plan to start a company in Scotland to trade with the W. Indies. It was founded by William Paterson and authorised in 1695 by the parliament in Scotland. In 1698 settlers were sent out to Darien, but they found it impossible to remain there. The climate was bad and the Spaniards hostile. The scheme was disliked in England, and its failure was attributed to this attitude, and there was much bitterness between the two countries for some years.

Darius Name of three Persian kings. Darius I., Hystaspis (521-485 B.C.) a son of Hystaspes, established himself as successor to Cambyses after suppressing various rebellions. He made Thrace and Macedonia Persian, and undertook two expeditions into Greece, the second being overcome at Marathon, 490 B.C. He organised the taxes, coinage, postal service, and maritime trade, dug a ship canal from the Nile to Suez, and permitted Xerxes to build Jerusalem's second temple (Ezra vi.).

Darius II., Ochus (424-404 B.C.), had a disputed reign. Under Darius III., Codomannus (336-331 B.C.), Philip of Macedonia and Alexander, victorious at the Granicus, Issus and Arbela, terminated Achemenian rule in Persia.

Darjeeling Town and district of Bengal. The town, 7000 ft. above sea-level, is a military and civilian health station, the summer quarters of the provincial government and an educational centre. It is 360 m. from Calcutta, connected by railway. Tea and rice are grown in the province in which are some of the foothills of the Himalayas. Pop. 18,000.

Darlaston Urban district of S. Staffordshire, in the Black Country, about 2 m. from Wednesbury, on the L.M.S. Rly. The chief industries are coal mining and iron working. Pop. (1931) 19,736.

Darling River of Australia. It rises in the Great Dividing Range in Queensland and flows right across New South Wales until it joins the Murray at Wentworth. The Warrego is its most notable tributary. On it are Bourke, Louth, Menindie and other places. Its volume of water varies very much; in a wet season steamers can ascend it beyond Bourke. Its length is 1160 m.

Darling Downs is a great grazing area in Queensland. It is famous for its sheep, and contains coal mines. Warwick and Toowoomba are the chief towns.

Darling Grace. English heroine. Born at Bamfborough, Nov. 24, 1815, she was the daughter of William Darling, keeper of the lighthouse on the Longstone, one of the Farne Islands. On Sept. 7, 1838, the steamer *Forfarshire* was driven on the rocks about a mile from the Longstone. The Bamfborough boatmen refused to put out through the wild seas, but Grace Darling persuaded her father to help her in taking a boat to their rescue. They reached the wreck and returned to the lighthouse safely with nine survivors, whom they tended for two days before they could be taken to the coast when the gale subsided. She received a purse of £700 raised by public subscription and many gifts and testimonials. She died of consumption at Bamfborough, Oct. 20, 1842.

Darling Lord. English lawyer. Charles John Darling was born Dec.

6, 1849, and became a barrister. In 1888 he was elected Conservative M.P. for Deptford, a seat he retained until made a judge in 1897. He retired in 1923, and in 1924 was made a baron. His reputation as a wit was maintained by the volumes of verse he published, including *On the Oxford Circuit*.

Darlington Borough and market town of S. Durham, on the Skerne, a tributary of the Tees, 230 m. from London and 23 from Durham, on the L.N.E. Rly. It has been an important railway centre since the opening of the Stockton and Darlington Rly. in 1828. The industries include railway locomotive shops, engineering works, iron works, and woollen mills. It is associated with the famous Quaker families of Pease and Fry. Pop. (1931) 72,093.

Darmstadt City of Germany. The capital of the republic of Hesse, 21 m. from Mainz, it is an important railway junction. Manufactures include chemicals and beer. In the 16th century Darmstadt became the residence of the family ruling over the part of Hesse called Hesse-Darmstadt. Pop. 90,000.

Darnel (*Lolium temulentum*). Annual grass related to rye grass. It is a native of Europe, temperate Asia and N. Africa. It differs from rye grass by its longer empty glumes and more turbid flowering glumes.

Darnley Lord. Scottish noble. Henry Stuart was born at Temple Newsam, Dec. 7, 1545, being the eldest son of the Earl of Lennox. Through his mother, a Douglas, he was descended from Henry VII. On July 29, 1565, he was married to Mary, Queen of Scots, and their only child was the boy who later became James I. Darnley's short married life, marked by his share in the murder of Rizzio, was ended when he was blown up and killed whilst lying ill in a house called Kirk o' Field, Edinburgh, Feb. 10, 1567. The share of Mary in this crime is still a riddle of history.

The Irish title of Earl of Darnley has been borne by the family of Blyth since 1725. The family seat is Cobham Hall, Kent, and the earl's eldest son is Lord Clifton. The 8th Earl, when Hon. Ivo Blyth, was a noted cricketer.

Dart River of Devon. It is formed by the E. Dart and the W. Dart. Both rise on Dartmoor and unite at Dartmeet, whence the river flows past Dartmouth to the English Channel. On account of the beauty of the scenery through which it flows it has been called the English Rhone. It is navigable to Totnes, and is 46 m. long.

Dartford Market town and urban district of Kent. It stands on the Darent, a tributary of the Thames, and 17 m. from London, on the S. Rly. There are ruins of a priory, once a famous pilgrim resort. Cement and paper are made, and there are engineering works and flour mills. It is proposed to build a tunnel from here to Purfleet. Wat Tyler started his rebellion here (1381). Pop. (1931) 28,928.

Dartmoor Moorland district in Devonshire. It covers about 300 sq. m. and is about 25 m. at its widest extent, N. to S., and 20 m. E. to W. It stretches from Okehampton almost to Plymouth and from Tavistock to Newton Abbot. It is practically useless for agriculture, though there is a little grazing. High Willhays and Yes Tor are the highest peaks, both just over 2000 ft. Princetown, with its convict prison, is on the moor

and on its edge are Lydford, Chagford and other places. The Dart, Tavy, Teign and Okement rise on the moor. In the N. it is used as an artillery range. The prison was built in 1806 to hold French prisoners of war. For some time after 1815 it was unused, but in 1830 it was made the chief convict prison for the country. In 1931 there was serious trouble among the prisoners.

The Dartmoor Terrier is a variety of fox terrier, bred to dig out foxes on the moor.

Dartmouth Borough, seaport and market town of Devon. It stands on the W. bank of the Dart, 30 m. from Exeter. Its station (G.W.R.) is at Kingswear on the other side of the river. A good harbour is formed by the river and it is a yachting centre. Pop. (1931) 6707.

Dartmouth Royal Naval College was opened in 1905 to train officers for the navy. They enter the college after passing a competitive examination and remain there as naval cadets for nearly 4 years. The building is on Mt. Boone and holds about 600 boys.

The title of Earl of Dartmouth was given to William Legge, a Secretary of State, in 1791. The earl's seat is Patsall House, Wolverhampton. His eldest son is called Viscount Lewisham, in which district he owns a good deal of land.

Dartmouth City of Nova Scotia. On the E. side of Halifax Harbour, it has engineering works and sawmills and a ferry crosses the harbour. It is the terminus of a railway line, now part of the national system. Pop. 7900.

Darton Urban district of Yorkshire (W.R.), on the Dearne, 4 m. from Barnsley, on the L.M.S. Rly. Coal mines and engineering works are the chief employments. Pop. (1931) 12,595.

Darwen Borough and market town of Lancashire, 20 m. from Manchester, on the L.M.S. Rly. The industries are the making of cotton and paper, coal mining and stone quarrying, and public baths were erected in memory of Sir Robt. Peel. Pop. (1931) 36,010.

Darwin Port and town of N. Australia. It stands on a gulf in the extreme N., and is connected with the interior by railway. There is a good harbour. Its earlier name was Palmerston.

Another Darwin is a settlement in the Falkland Islands.

Darwin Charles Robert English naturalist. The son of Dr. Robert W. Darwin, F.R.S., he was born at Shrewsbury, Feb. 12, 1809, and educated there and at Edinburgh and Cambridge. From 1861 to 1836 he served as naturalist on board the *Beagle* in its survey of the Atlantic and Pacific Oceans, and the knowledge gained on this voyage laid the foundations of his later researches. In 1839 he married Emma Wedgwood and the next 20 years were spent in scientific researches, chiefly at Down in Kent. The results were published in *The Origin of Species* in 1859, a landmark in the history of science, and in 1871 appeared *The Descent of Man*. He died April 19, 1882.

The theories of Darwin were fiercely assailed and aroused bitter controversy. He believed that man is related to the lower animals and that in animal life there is a continuous struggle for existence which leads to the natural selection of those qualities that are most useful to preserve and continue the life of the species.

This is the doctrine of the survival of the fittest, or natural selection. Darwin gives many examples of the selective process, which he studied very intently. His theory that man is descended from the lower animals is now a truism of science. His theory of natural selection is accepted, with certain modifications due to the influence of environment, which he ignored or rejected. His house at Down, Kent, is now the property of the British Association.

Darwin's sons inherited his gifts. Sir George Howard Darwin (1845-1912) was professor of astronomy at Cambridge, 1883-1912. Charles Galton Darwin became professor of natural philosophy at Edinburgh in 1928. Sir Francis Darwin (1848-1925) was reader in botany at Cambridge and was responsible for his father's *Life and Letters*. Bernard Darwin won fame as a golfer and a writer on golf. Leonard Darwin (born 1850), the scientist's fourth son, became a soldier in the Royal Engineers. He went on several scientific expeditions and later became president of the Eugenics Society, and a writer on that subject. Sir Horace Darwin (1851-1928) became the head of a firm, at Cambridge, making scientific instruments.

Darwin Erasmus. English scientist. He was born at Elston, Nottinghamshire, Dec. 12, 1731, studied at Cambridge and Edinburgh, and became a doctor. His poem, *The Botanic Garden* (1792), shows a great love of nature, although the style is stilted and artificial. His most noted scientific work was his *Zoonomia*, 1794, in which he treats of pathology and generation. In this latter work he anticipated much of the Lamarckian idea of evolution. He was the grandfather of Charles Darwin and of Francis Galton. He died April 18, 1802.

Datchet Village of Buckinghamshire, on the S. Rly. It stands on the Thames, 2 m. from Windsor. Datchet Mead is the scene of Falstaff's tribulation in *The Merry Wives of Windsor*. There are remains of a monastery near the bridge. Pop. 2056.

Date Fruit of a tree of the palm order. A native of N. Africa and S.W. Asia (*Phoenix dactylifera*), it is widely cultivated in India. Mediterranean Europe grows it for Palm Sunday foliage. It is straight-stemmed and crowned with feather-like leaves, the male and female flowers being found on separate trees. It grows to a height of 100 ft. and bears dates in bunches of 200 or so. The natives of N. Africa use the date-palms for building huts, for fibre cloth, ropes and brooms.

The fruit of the date palm is very rich in sugar, and is largely exported to Great Britain.

The date plum is a tree that bears fruit about the size of a small orange. The plums are dried and eaten as a desert fruit.

Daudet Alphonse. French novelist. Born at Nîmes, May 13, 1840, the son of a silk manufacturer, he was educated at Lyons and became a secretary in Paris. His studies of his early life in Provence, e.g., *Lettres de mon Moulin*, 1866, *Le Petit Chose*, 1868, appeared first in the newspapers, but a wider fame came with the wonderful adventures of the imaginary Tartarin de Tarascon. *Fromont Jeune et Risler Aîné*, *Trente ans de Paris*, 1888, and *Souvenirs d'un Homme de Lettres*, 1888, are autobiographical. *L'Immortel* is a satire on the Academy. Daudet died in Paris, Dec. 17, 1897.

His son, Léon Daudet, born Nov. 16, 1867, became a journalist and editor of *L'Action Française*. He is better known, perhaps, as a

royalist, and his advocacy of that cause led to his imprisonment.

Dauphin Title borne by the eldest son of the kings of France. It means dolphin and was the title of certain princes in the 13th century or earlier. One of these, the Dauphin of Vienne, sold his lands to the prince who, in 1364, became King Charles V. He gave these lands to his son, and from that time the eldest son was called the Dauphin, just as in England he was called the Prince of Wales. His inheritance, the district round Grenoble, became known as Dauphiné.

Davenant Sir William. English poet. The son of an innkeeper at Oxford, he was born in Feb. 1606, and was a godson of Shakespeare. In 1629 he was made poet laureate and became manager of a London theatre. In the Civil War he fought for Charles I. and was knighted, but later he was imprisoned as a royalist. He died April 7, 1668. Davenant wrote *The Cruel Brother* and other plays, but is best known as the author of "The lark now leaves its watery nest."

Davantory Borough and market town of Northamptonshire. It is 74 m. from London and 12 m. from Northampton, on the L.M.S. Rly and the Grand Union Canal. The chief industry is the making of boots and shoes. Here the British Broadcasting Co. has erected a high power station for the transmission of regional programmes (1554.4 M.; 30 kW.). Pop. (1931) 3608.

Davey Lord. English lawyer. Horace Davey was born Aug. 30, 1833, and educated at Rugby and University College, Oxford. In 1861 he became a barrister, and in 1880 Liberal M.P. for Christchurch. In 1886 and in 1892-93 he was Solicitor-General. From 1888 to 1892 he was M.P. for Stockton. In 1893 he was made a Lord Justice, and in 1894 a Lord of Appeal and a life peer as Lord Davey of Fernhurst. He died Feb. 20, 1907.

David Biblical character. The youngest son of Jesse, a man of Jerusalem, he became a shepherd and famed for his skill on the harp. Samuel, the prophet, anointed him as Saul's successor in the kingship, and he became armour-bearer to the king. Having killed the giant Goliath, he became the bosom friend of Saul's son, Jonathan, but Saul's enmity soon drove him into the wilderness where he became the leader of a body of discontented men who lived in the cave of Adullam. The death of Saul, and Jonathan, in battle against the Philistines followed, and David became King of Judah, but his reign was passed in warfare, mainly against his rebellious son, Absalom, and others.

David is regarded as the founder of the royal line to which Jesus Christ belonged. His story is told in the books of Samuel, Kings, and Chronicles. He stands out as a national hero, remarkable for strength and skill, a great leader of men, but capable of dastardly deeds in pursuance of his ends. His statue by Michelangelo at Florence is one of the world's masterpieces.

David Name of two kings of Scotland. David I., a son of Malcolm Canmore, passed his youth in England. In 1124 his brother, Alexander I., died, and he became king. His chief work was to establish bishoprics and monasteries. He died May 24, 1153.

David II. was a son of Robert Bruce. He became king in 1329, but passed many years as a prisoner, first in France, and then, after

his defeat at Neville's Cross, in England. He died in Edinburgh, Feb. 22, 1371.

David Patron saint of Wales. According to legend he was a grandson of King Ceredig, uncle of King Arthur and a great miracle worker, and his mother was Non, a Cymric saint. Historically, he was born early in the 6th century and became Bishop of Menevia, now S. David's. As the head of the church in Wales he moved the seat of ecclesiastical government from Caerleon to Menevia. He founded many churches. He died about A.D. 401, and was canonised by Callixtus II. in 1120.

S. David's Day is March 1.

David Jacques Louis. French historical painter. Born in Paris, Aug. 31, 1748. His father was an architect. Under Napoleon he was given official recognition, but was afterwards exiled and died in Brussels, Dec. 29, 1825.

• Among David's best pictures are "Madame Récamier" and "The Coronation." "The Rape of the Sabines" (1799) is usually accounted his masterpiece. He was also a politician, and as a member of the convention voted for the death of Louis XVI., later following Robespierre.

Gegard David was a Flemish painter who lived between 1450 and 1523. Some of his work is in the National Gallery, London.

Davidson •Baron. English archbishop. Randall Thomas Davidson was born April 7, 1848, near Edinburgh, and was educated at Harrow and Trinity College, Oxford. In 1874 he was ordained and for 3 years was a curate at Dartford. In 1877 he was made domestic chaplain to the Archbishop of Canterbury, whom he served for 6 years. In 1883 he was appointed Dean of Windsor, in 1891 Bishop of Rochester, and in 1895 Bishop of Winchester. In 1903 he was chosen Archbishop of Canterbury, and for 25 years held that post, a longer period than most of his predecessors. He resigned in 1928 and was made a baron. He died May 25, 1930.

Davidson John. Scottish poet. Born April 11, 1857, at Barrhead, his father was a minister. He was educated at Edinburgh, and was for twelve years a schoolmaster. In 1890 he settled in London where the rest of his days were devoted to poetry, and his volumes, *Fleet Street Eclogues* and *Ballads and Songs*, won for him a high place amongst the poets of his day. He drowned himself at Penzance, March 23, 1909.

Davidson John Colin Campbell. British politician. Born in Aberdeen, Feb. 23, 1889, he was the son of Sir S. M. Davidson, a noted physician there. Educated at Westminster School and Pembroke College, Cambridge, he entered political life and between 1910-20 was private secretary to a succession of ministers. In 1920 he was elected Unionist M.P. for the Hemel Hempstead division, and in 1923 was Chancellor of the Duchy of Lancaster. From 1924-26 he was Parliamentary Secretary to the Admiralty, and was chairman of the Unionist party organisation from 1926 to June, 1930. In 1928 he was made a Privy Councillor.

Davies Benjamin Grey. Welsh vocalist known as Ben Davies. Born in Glamorganshire, Jan. 6, 1858, he studied music in London. For many years he was with the Carl Rosa Opera Co., and his tenor voice was also heard to great advantage in *Ivanhoe* and other operas at Covent Garden Theatre, London.

Davies Sir Henry Walford. British organist and composer. Born at Oswestry, Sept. 6, 1869, he was a chorister at Windsor and took up music as a career. After studying in London, he was appointed organist of Christ Church, Hampstead, in 1891, and in 1898 organist of the Temple Church, London. He resigned that position in 1923 to give more time to his duties as professor of music at University College, Aberystwyth. In 1924 he was chosen Gresham Professor of Music, and in 1927 organist of St. George's Chapel, Windsor. In 1922 he was knighted. Davies is known as the composer of cantatas and other music, and for his popular broadcasting talks. He was (1903-07) conductor of the Bach Choir.

Davies William Henry. English poet. Born at Newport, April 20, 1871, he lived a wandering life in America and Britain, chiefly as tramp and pedlar. All the time he was writing poetry, and in 1906 his volume, *The Soul's Destroyer*, attracted a good deal of attention. Other volumes followed, all showing a love of nature expressed in beautiful language. These include *The Song of L.* 1926. His prose writings include *The A. biography of a Super-Tramp*, *A Poet's Pilgrimage* and *The Adventures of Johnny Walker, Tramp*.

Davis Jefferson. American statesman. Born in Kentucky, June 3, 1808, he was in the army from 1828 to 1835. In 1845 he was elected to Congress by Mississippi, and served in the Mexican War (1846-47). In 1847 he became a member of the Senate. From 1851 to 1855 he was Secretary for War, and in 1855 he returned to the Senate. In 1861, when the southern states seceded from the union, Davis was elected their president and remained president during the war. When it was over he was accused of treason, and passed some time in prison, but in 1869 he was released. He died Dec. 6, 1889, and was buried at Richmond, Virginia.

Davis John. English sailor, sometimes called John Davys. (Not to be confounded with John Davis of Limehouse, also a navigator, who lived several decades later.) Born in Devonshire about 1555, he went to sea, and in 1585 tried to find the North-West Passage. After voyages to the Arctic Ocean, he went S. and discovered the Falkland Islands in 1592, and then E. to the Indies. In 1604, Dec. 29 or 30, he was killed during a fight with pirates in the eastern seas.

Davis Strait, the channel connecting Baffin Bay with the Atlantic is named after him. It is 200 m. wide at the entrance and separates Baffin Island from Greenland. **Davis Sea**, part of the Antarctic Ocean, is named after a later explorer, James Davis, who explored it in 1914.

Davis Cup Trophy contended for by international lawn tennis teams. It owes its name to Dwight Davis, an American politician. Each team consists of four men. From 1920 to 1926 it was won by the United States, and from 1927 to 1932 by France.

Davit Projection on a ship's side or stern for holding a boat. Usually pairs of straight or curved wood or metal arms, they can be shipped or unshipped at will. They commonly turn on their axes, enabling the boat to swing inboard for stowage, or outboard for lowering by pulleys. Cat davits are similar fore-castle cranes for catting anchors.

Davitt Michael. Irish politician. Born in Mayo, March 25, 1846, he was

the son of a peasant who was evicted from his holding and went to Lancashire in 1851. There Michael began to work in a cotton mill at Haslingden, and a few years later lost his right arm through a machinery accident. He soon became an active Fenian, and was one of the band that attacked the castle at Chester. In 1870, for trafficking in arms, he was sentenced to a long term of imprisonment, but was released in 1877. In 1879 he founded the Land League, but his activities led to his return to prison; while there he was elected M.P. for Meath, but as a convict was unable to take his seat. He sat in the Commons as M.P. for South Mayo, 1895-99, but until Parnell's death he was one of his opponents. In 1900 he helped to found the United Irish League. He died May 31, 1906. Davitt's writings include *Lessons from a Prison Diary*.

Davos Platz Winter and health resort of Switzerland. It is in the Davos valley, which is 8 m. long, and stands 5000 ft. high. It is famous as a resort for consumptives, and for its organised winter sports, including skating, skiing, ice hockey and bobsleighing. About 2 m. away is Davos Dorf, also a health resort in the valley.

Davout Louis Nicolas. French soldier, brilliant, but a despot. Born in Burgundy, May 10, 1770, he became a marshal in 1804, and held commands at Austerlitz and elsewhere. He was with Napoleon in Russia in 1812 and was then in Germany where, in 1814, he surrendered. He joined Napoleon during the Hundred Days, and after Waterloo remained with the army to the last. He was pardoned in 1817, when he regained his title of Duke of Angers, and took part in public life until his death, June 1, 1823.

Davy Sir Humphry. English chemist. He was born at Penzance, Dec. 17, 1778, educated at the grammar school there, and apprenticed to a doctor. In his early studies in chemistry he investigated the properties of gases, and discovered laughing gas. After his appointment as professor of chemistry at the Royal Institution, London, in 1802, his work was concerned with agricultural and electro-chemistry. In 1810 Davy demonstrated the true nature of chlorine, and his discovery by electrolytic methods of the metals sodium and potassium was followed by the isolation of boron, proof of the combustibility of the diamond and the invention of the Davy safety lamp. He was knighted in 1812 and received a baronetcy in 1818. In 1820 he was made President of the Royal Society. He died at Geneva, May 29, 1829.

Davy Lamp Miner's safety lamp. It was invented by Sir Humphry Davy in 1815. An oil lamp is enclosed in a cylinder of metal wire gauze through which the flame cannot be communicated even in an atmosphere which contains sufficient coal-gas to be explosive.

Dawes Charles Gates. American diplomatist. Born in Ohio, Aug. 27, 1865, he became a lawyer and practised at Lincoln, Nebraska. Later he turned to business life, and in 1917 was appointed chairman of the purchasing board of the American army. In 1923 he represented his country when the question of German Reparations was considered. The scheme drawn up at that time was called the Dawes Plan, and provided for the payment by Germany of certain sums yearly, the total amount to be fixed later. It was operative until superseded by the Young Plan in 1929. In

1924 he was elected Vice-President of the United States on the republican ticket. When he vacated that office in 1929 he was sent as ambassador to London. He retired in 1932 to take charge of the Reconstruction Corporation, but soon returned to business life in Chicago.

Dawlsh Urban district and seaside resort in Devonshire. It is 12 m. from Exeter, and 3 m. from Teignmouth, on the G.W. Rly. The sea front is bright and attractive with extensive sands. Pop. (1931) 4578.

Dawson City Capital of the Yukon territory, Canada. A river port, it stands at the junction of the Rivers Klondike and Yukon, about 1500 m. from the sea. Founded at the end of the 19th century, it became prosperous owing to the discovery of gold in the Klondike district. As the mines became less productive the city declined in importance. Pop. 3000.

Dawson River of Queensland. It rises in the Carnarvon range and joins the Fitzroy River below Boolburra. The two rivers have a combined length of 350 m. Coal of good quality is found in the river valley, but not much mining has been done.

Dawson of Penn. Lord. Bertrand Edward Dawson, the first baron, studied at University College and the London Hospital. He has done much research on gastric trouble, and has published treatises on paratyphoid and infective jaundice, on which he worked during the war. He became a peer in 1920, and is Physician-in-Ordinary to the king.

Dawson Sir John William. Canadian geologist and naturalist. Born in Nova Scotia, Oct. 30, 1820, he went to Edinburgh to complete his education. In 1842 he started to survey Nova Scotia, and in 1850 he was superintendent of education for the province. From 1855 to 1893, he was principal of McGill University, Montreal, and professor of geology there. In 1884 he was knighted, and in 1886 was President of the British Association. He died, Nov. 20, 1899.

His son, George Mercer Dawson (1849-1901), was director of the geological survey of Canada. Dawson City is named after him.

Day John. English dramatist. Born at Cawston, Norfolk, about 1574, he went to Cambridge. He is known as the author of a dramatic allegory, *The Parliament of Bees and Humour out of Breath*. He wrote plays in association with Henry Chettle and Thomas Dekker before his death in 1640.

Daybrook Village of Nottinghamshire. It is 3 m. from Nottingham, on the L.N.E. Rly. Lace and hosiery are manufactured and there are laundries and a large brewery. Bestwood Lodge is near.

Daylesford Town of Victoria, about 75 m. N.-W. of Melbourne. In an agricultural district, it is a mining centre and there is a school of mining. Pop. 3846.

The original Daylesford is a village in Worcestershire. Warren Hastings, the Indian administrator, bought back the estate, which had for centuries been in his family, and rebuilt the house. He is buried in the churchyard.

Daylight Saving Scheme for giving extra hours of daylight in the summer. It was first brought forward by William Willett in an article published in *The Daily Telegraph* in 1907. The idea

was to advance the clock one hour during the summer so as to increase the daylight in the evening, thereby benefiting the general health and welfare of the community and reducing the consumption of artificial light.

For many years Willett faced great opposition but in 1916, a year after his death, Summer Time became law by Act of Parliament, and by a further Act in 1925 the change was made permanent. This provides that on the morning of the day following the third Saturday in April, or the second Saturday if the third is Easter eve, the clock shall be advanced by one hour. It is put back one hour on the day following the first Saturday in October. This applies to Great Britain and Northern Ireland, while France, Belgium and other countries have adopted a similar scheme.

Dayton City of Ohio. It is 50 m. from Cincinnati, at the junction of the Great Miami River with three of its tributaries, it is an important railway junction with a network of electric lines. A busy manufacturing place, here are the works of the National Cash Register Co. and other large concerns. The city is a station of the U.S.A. air service. Pop. 178,600.

Daytona Seaside resort of Florida. It is on E. coast, about 50 m. south of St. Augustine. It is famous for its beach on which motor races are run.

Deacon In the Anglican and Roman Churches, a member of a clerical order. The word in Greek means servant, and the first deacons, of whom Stephen, the first Christian martyr, was one, were appointed soon after the death of Jesus Christ (Acts vi.).

In the Church of England a man cannot be ordained deacon until he is 23 years of age. After serving as a deacon for a year, he is usually ordained priest. A deacon can conduct the services, but is not permitted to consecrate the elements at the Communion service, or to pronounce the absolution. In certain Nonconformist churches, deacons are laymen elected to manage the affairs of the church.

The office of deaconess existed in the early church, but after some centuries, owing to the growth of religious houses for women, they disappeared. They were revived in the 19th century and are now found in the Church of England and various Nonconformist churches, as well as in Germany and the United States. In the Church of England since 1897 they have carried on social work after being licensed as a bishop, and have been ordained for work as missionaries abroad.

Dead Letter Office In Great Britain a department of the General Post Office. Letters which cannot be delivered because of being insufficiently addressed, the departure of the addressee, or any other reason, are opened here, and returned to the sender.

Deadly Nightshade Plant found in Great Britain and elsewhere. It grows in shady spots and bears reddish flowers and small black berries. The root, leaves and berries are very poisonous. Atropine and belladonna are prepared from the leaves and root. The plant is sometimes called the belladonna.

Dead Men's Fingers Popular name for a coral zoophyte, *Alcyonium digitatum*. It is frequently cast up on British coasts. The pink,

spongy-looking masses are studded with tentacled polyps, which do not harden into solid skeletons. The word also refers to the spotted orchis, *O. maculata*, or marsh orchis, *O. latifolia*, with pale hand-like tubers. Shakespeare mentions them in *Hamlet*, iv. 7.

Dead Nettle Genus of annual perennial hairy herbs of the labiate order. It is native to temperate Europe, Asia and N. Africa. The botanical name is *lamium*. The commonest British species are the red flowered *L. purpureum*, white flowered *L. album*, yellow flowered *L. galeobdolon*, the imperfect flowered henbit, *L. amplexicaule*, and the spotted *L. maculata*, with white striped leaves and spotted flowers.

Dead Sea Lake of Palestine. It is 47 m. long and covers 340 sq. m. It receives the waters of the Jordan and lies 1300 ft. below the level of the Mediterranean. The Arabs call it Birkat-Lut, or the Lake of Lot and it is supposed to occupy the site of the cities of the plains, Sodom and Gomorrah. Its waters, reduced by evaporation, contain 25 per cent. of alkaline salts, and asphalt is found near. Fish cannot live in the sea, but the human body floats easily on it. Steps have been taken of recent years to extract the salt.

Dead's Part In Scott's law the part of a person's estate which he can leave to whom he will. It is one-third for a married man with children; in other cases it may be half or even all. Like Roman law, Scots law does not allow a person to leave all his money away from his family.

Deaf Mute Person, who, unable to hear from birth or infancy, has never learned to speak. For teaching such persons to understand the thoughts of others, gestures were at first employed, but in time these gave way to a regular alphabet, in which there is a finger position for each letter. In Great Britain both hands are used; in the United States only one. Lip reading is also employed, but this is less satisfactory.

In Scotland the education of deaf mutes was made compulsory in 1890, and in England and Wales three years later. There are several societies for them in Great Britain. The Royal Deaf and Dumb Association, unifying about 60 local welfare societies, maintains churches for them. The National College of Teachers of the Deaf promoted an international conference on the subject in London in 1925. The National Institute for the Deaf at 2 Bloomsbury Street, London, W.C. 1., is concerned with their industrial training. In the United Kingdom there are about 40,000 deaf mutes.

Deafness Lack of hearing. Deafness from atrophied auditory nerves is permanent. It may result, in any degree, partial or transient, from imperfect conduction to the nerves of sound vibrations from the outside. It is due to inflamed external meatus, the presence of foreign body or hardened wax, usually remediable, or a diseased or injured diaphragm of the middle ear or inner ear. Occupational deafness affects boiler-makers, artillerymen and others who hear constant noises. Nerve deafness, sometimes partial, frequently attends old age. Middle-ear deafness may be due to scarlatina, adenoids or nasal catarrh. Word deafness prevents sufferers from attributing meanings to words that they hear.

Deakin Alfred. Australian politician. Born at Melbourne, Aug. 3, 1885, he

was educated there and became a lawyer. In 1878 he was elected to the legislature of Victoria and from 1883 to 1886 he was minister of public works and Solicitor-General. From 1886-90 he was State Secretary. He worked for the federation of Australia and in 1900 became Attorney-General and a leading member of the first federal cabinet. In 1903 he followed Barton as prime minister, a post to which he returned in 1905. He resigned in 1908, but was again premier for a short time in 1909. He died Oct. 7, 1919.

Deal Borough and watering place of E. Kent, and one of the Cinque ports. It is 7 m. from Dover and 91 from London, on the S. Rly. At one time Deal was a prosperous port, but the sea has receded. It is now known as a pleasure resort. Pop. (1931) 13,680.

Deal Trade name for sawn fir timber. It covers yellow Scottish *Pinus sylvestris*, white American *P. strobus*, and silver fir, *Abies excelsa*, besides allied building timbers. English deals are 7-9 ins. by 3 ins. by 6 ft. and over; those under 7 ins. are battens, over 10 ins. are planks, thinner are boards, shorter are deal ends. American deals are 11 ins. by 2½ ins. by 12 ft. A standard hundred of deals contains 120 pieces.

Dean (Lat., *decanus*). Ecclesiastical and collegiate official. It referred at one time to the judge of both districts, and came to be used for the senior member of a society. Most of the English cathedrals and also Westminster Abbey and St. George's Chapel, Windsor, each have a dean who is the head of the body called the chapter which is responsible for looking after its affairs. In the Oxford and Cambridge Colleges, the dean is responsible for all matters of discipline. Other deans are the Dean of the Archies, or Judge of the Court of Arches, and the Dean of Guild, an official in some Scottish burghs. A rural dean is a clergyman who looks after a part of a diocese.

Dean Forest of. District of S.W. Gloucestershire. It lies between the Severn and the Wye, and covers about 60 sq. m. It is largely crown property. Much of it is still forest land, where oaks and beeches grow, but elsewhere are coal mines. Cinderford and Coleford are the chief towns; the court of speech, now part of the Speech House Hotel, is the old capital. A railway line crosses the forest from Lydney to Lydbrook. Buardean Hill (930 ft.) is the highest point. St. Briavels is famous for its castle and church.

Death End of life. It may be natural or violent. In England and Wales, if a medical man is unable to give a certificate saying that the death was from natural causes, an inquest must be held by a coroner, in Scotland an inquiry by a procurator-fiscal. Every death must be registered with the registrar of births, marriages and deaths, otherwise the burial cannot take place.

Death Duties are the duties charged on the property left by a dead person. In Great Britain, they consist of estate duty and legacy duty. See ESTATE; EXECUTOR; LEGACY.

Death Rate Number of deaths occurring annually per thousand members of a country's population. Statistics are collected by the Government to show the increase or decrease between one period of years and another, to compare the mortality of the sexes at different ages, and the incidence of death in one district or occupa-

tion with that in another. Death rates are usually higher in tropical than in temperate countries.

Owing to improved methods of sanitation, greater medical skill, scientific discoveries, humanitarian ideas and other causes, the death rate in all civilised countries has decreased greatly in recent years. In 1876 the rate for England and Wales was 20.9 per 1000. The later figures are:—

1924	..	12.6	1927	12.5
1925		13.4	1928	11.9
1926	X	11.9	1929	13.6

Death Watch Beetle Popular name applied to a small beetle (*xestobium rufohilosum*) which lives in wood, and makes a ticking noise, wrongly believed to foretell death. The noise is really a mating call. The ravages of this insect in furniture and old buildings are extensive, necessitating regular architectural surveys and often wholesale reconstruction.

Deauville Watering place of France. It is on the English Channel, 10 m. from Havre, and is separated from Trouville by the little River Touque. The place, which has good hotels, golf links and other attractions, is much visited by Britons. A race meeting is held in August. Pop. 3000.

Debenture Bond issued by a company or other legal corporation as evidence of a loan of money raised. The document states the amount of the loan, the rate of interest, the security (if any) and the terms of issue, including the lender's rights in default of payment of interest or principal. Debentures, like shares, are often issued in series by companies who raise huge loans by this means, and can be transferred like stocks and shares on payment of a stamp duty.

Sometimes second debentures are issued, in which case the others are known as first or prior lien debentures. Debenture holders are not members of a company, but are creditors of it. Debentures must be registered at Somerset House, London, W.C.

Deborah Prophetess of Old Testament history. She encouraged the Hebrews to victory over Sisera in Canaan. The Song of Deborah (Judges v.), one of the oldest specimens of Hebrew literature, describes the battle and the killing of Sisera by Jael.

Debreczen Town of Hungary, 130 m. E. of Budapest. It is an important railway junction, and a market for horses, cattle and agricultural produce. The university was founded in 1912, and the area under the municipal authorities covers 650 sq. m. It was once a fortress and noted as a stronghold of the Calvinists. Pop. 108,000.

Debrett John. English publisher. Born about 1752, in 1781 he took over the business carried on in Piccadilly, London, by John Almon. Almon had already issued in 1754 a *New Peerage*, and this was turned by Debrett into *Debrett's Peerage and Baronetage*. He died Nov. 15, 1822.

Debt Sum of money owing by one person to another. If a person cannot get his debt paid he usually turns it over to a solicitor or a debt collecting agency. In English law the process is to issue a writ or a summons for the amount. If this is £100 or less the case comes on in a county court;

if more than that amount in the high court. Unless the debtor is able to prove that he does not owe the money, the judge will order it to be paid and, if this is not done, a distress can be levied on his goods. If there are no goods on which to levy a distress, the creditor should apply for a judgment summons. In this case the judge usually orders payment by instalments, and if the debtor then fails to pay he can be imprisoned for contempt of court. In Scotland the process is somewhat different.

An ordinary debt cannot be claimed if it is more than 6 years old, under the Statutes of Limitation, unless it has been acknowledged in writing since that date. In the case of a debt expressed in a deed, called a specialty debt, the period is 20 years. The limitation of debts does not operate in the case of money due to the crown.

Debussy Claude Achille. French musician. He was born at St. Germain-en-Laye, Aug. 22, 1862, and after studying at the Paris Conservatoire, won the 'Grand Prix de Rome with a cantata *L'enfant prodigue* in 1881. Debussy then became a pioneer of impressionism, seeking to distil into musical terms the sights, sounds and atmospheres of nature. His orchestral work, *L'après-midi d'un Faune* (1894), his opera *Pelléas et Mélisande* (1902), and his lovely pianoforte music are proofs of his success. He died March 25, 1918.

Decalogue (Gr. *deka*, ten; *logos*, speech). The ten commandments. According to the account related in Exodus, they were given by God to Moses on Mount Sinai, and were originally written on two tables of stone. They were first introduced into the liturgy of the Church of England in the prayer book of Edward VI. in 1552. They are not to be regarded merely as definitions of different crimes, but as ethical and spiritual precepts.

Decameron Collection of tales written by Boccaccio. The idea is much the same as that of Chaucer's *Canterbury Tales*, some of which are borrowed from Boccaccio, who in turn, borrowed from other writers. During the plague in Florence in 1348 certain persons left the city and stayed for 10 days in an inn. Here they told the stories. Boccaccio wrote the book about 1350. The first English translation was made in 1620.

Decapolis (Gr. *deka*, ten; *polis*, city.) District of the Roman Empire occupied by a league of 10 cities. They enjoyed various privileges, struck their own coins, and were liable to military service. The decapolis of Palestine, probably formed during Pompey's campaigns in the East, is well known. Gadara was one of its cities.

Deccan District of India. A Sanscrit word which means "southern," the Deccan is a great plain lying to the S. of the Vindhya Hills, with the Ghats, E. and W., on either side. In it are Bombay and Madras, as well as the Central Provinces. Some believe that it was part of a continent now mainly under the sea. Much has been done since the Great War to irrigate the district, now named Gondwanaland.

Decimal In arithmetic, a term applied to a fraction having ten or some power of ten as a denominator. It is represented by a point, thus .4 means four-tenths,

and 62.5 means 62½. To divide or multiply by ten and multiples of ten the point is moved in one way or the other, and if necessary noughts are added, thus, 33.412 divided by 1000 is .033412.

The decimal system of coinage has been adopted in most civilised countries except Great Britain and India. A standard unit is taken for reference, such as the franc in France and the dollar in the United States. In the metric or decimal system of weights and measures the metre is the standard unit of length, the gramme of weight and the litre of capacity. The other measures are this unit multiplied or divided by ten or a multiple of ten, e.g., a kilogram is a thousand grammes.

Decimation Selection by lot of every tenth man. It was a Roman military punishment, adopted to avoid undue weakening, when large numbers of troops merited death for mutiny. It occasionally applied also to captured prisoners. The term nowadays incorrectly designates wholesale destruction, such as decimation by fever or enemy fire.

Decius Caius Messius Trajanus. Roman emperor. Of obscure birth he rose to be governor of Moesia, whither he was sent to pacify the revolting army. His soldiers forced him to assume the purple and he was also recognised in Rome. He was finally defeated and slain by the Goths in a battle on the Danube. His brief reign, from 219 to 251, is especially notorious for a cruel persecution of the Christians.

Declaration Formal statement of any kind. Outstanding examples are the Declaration of Indulgence of 1687; the Declaration of Rights of 1689; the American Declaration of Independence in 1776; the Declaration of Paris, concerning maritime warfare in 1856; and the Declaration of London on similar subjects in 1908-9. In English law, solemn declarations before authorised persons sometimes replace affidavits. A deathbed declaration respecting cause of death may be valid evidence. Declarations of trust must be in writing and signed. In Scots law prisoners may make signed declarations before magistrates within 48 hours of arrest; parties appearing before a court after ascertainment of facts, such as marriage, are entitled to a declaration. Declarations of war nowadays usually follow initial acts of hostility.

De Clifford Baron. English title, one of the oldest in the peerage. It was given in 1299 to Robert de Clifford. His family became extinct in 1605, and the barony was in abeyance until 1691. In 1721, having been held by the Tuftons, it again fell into abeyance, as it did in 1775 and 1832. In 1832 it came to Sophia, wife of John Russell, a descendant of the Southwells who held it from 1776 to 1832 and in that family it has since remained.

Declinator Instrument used in astronomy for determining the declination of a star or place in the heavens. This is the angular distance from the celestial equator as seen from the earth, thus corresponding with terrestrial latitude, just as right ascension corresponds with longitude.

Decomposition As generally applied, the decay or separation of the constituents of a substance. As regards organic matter this process is expedited by the action of bacteria, fungi and various insects as well as by rain, frost,

etc., and the acids set free from decaying matter act as agents in the decomposition of rocks. In the case of granite the solvent action of carbonated waters resolves the rock into its constituents to form beds of sand and Kaolin.

Decorated Period Style of Gothic architecture intervening between Early English and Perpendicular. It covers approximately the reigns of the first three Edwards, 1272-1377. Dog tooth passed into ball flower moulding, foliage became more naturalistic, and ogee curves developed. A geometric style, e.g., as in the angel choir at Lincoln and the nave at Lichfield, became, by eliminating circle tracery, flowing and curvilinear. The choir stalls at Westminster and Ely and Aymer de Valence's tomb in Westminster Abbey illustrate other forms. Other fine examples of decorated work are the spires of the cathedral at Salisbury, of St. Mary the Virgin, Oxford, and of the cathedral towers at Hereford and Wells.

Decoy Contrivance for luring wildfowl into snares or within reach of guns. The term, denoting in Tudor England a sharper and a card game, was perhaps transferred to Dutch duck cages in Stuart times. Charles II. made one in St. James's Park in 1685. Channels are made from an estuary into a pool. Arched with nets gradually narrowed, and the wild fowl lured therein by trained decoy ducks. In America artificial birds float in suitable spots. Some sportsmen hang caged partridges in trees as decoys.

Decree Authoritative decision having the force of law. The term designates such decisions by Roman emperors, and subsequently by ecclesiastical councils, e.g., Trent. Formerly denoting equity decisions, decrees are now usually called judgments, except notably in the divorce court, which makes decrees for restitution of conjugal rights, judicial separation or divorce. Those for separation or divorce, at first conditional, or decrees nisi (unless) become absolute after six months.

Decretal Letters and official acts of the popes, which had the force of law and were unreservedly accepted. The first collection of these were sent by Innocent III. in 1210 to the University of Bologna, additions being made by later popes. Apocryphal decretals soon became common; the most celebrated collection appeared in the 9th century in the Frankish Empire under the name of S. Isidore. It was received as authentic by the councils and popes.

Dedham Town of Essex. It is 7 m. from Colchester and about 2 m. from its station Arleigh on the L.N.E. Ry. It was once a centre of the cloth trade and had a market. The Stour flows by the town and on it is a picturesque mill. Dedham has association with Constable, the artist.

Deduction In mathematics the act of subtraction. Accountants deduct losses from gross receipts; agents deduct commissions before making payments.

In logic deduction is the act of deducting from general principles particular results. Deductive reasoning is followed in making weather forecasts. Thus, if for many years it has been wet on the 40 days following St. Swithin's day, it can be deducted that it will be wet during that period in the future. The

opposite, though similar process, from the particular to the general, is induction.

Dee Name of several British rivers. The Welsh Dŷo rises in Bala Lake and flows to Chester, where its estuary begins. It is 13 m. long, but its commercial importance has been destroyed by the accumulation of sand in the estuary.

Another Dee is in Aberdeenshire, 90 m. long, and passes Balmoral on its way through Deeside to the sea at Aberdeen. It is famous for its salmon. A shorter Dee, in the county of Kircudbright, is 45 m. long and rises in a loch of the same name.

Dee John. English alchemist. Born in London, July 13, 1527, he was educated at Cambridge. He claimed to foretell the future by means of the stars and crystals. He was put in prison in the time of Mary, but Edward VI. gave him two livings in the church, and Elizabeth believed in him and visited him for advice. He died at Mortlake in Dec. 1608. Dee claimed to be able to transmute gold, and suggested a reform of the calendar. He wrote books on mathematical subjects. His son, Arthur Dee (1579-1651), was physician to the Tsar of Russia and to Charles I.

Deed In law a document given under seal, more binding than an ordinary agreement. It must be stamped, the value of the stamp varying according to the amount of property dealt with by deed. It should be signed by each party to it and the signatures witnessed. Deeds are executed where houses and land are sold, or mortgages are granted. Settlements of money on marriages and other occasions are usually done by deed.

Another deed is a deed of arrangement by which an insolvent person hands over his property to his creditors and so avoids bankruptcy. A deed made by one person is called a deed poll. Examples are where a man changes his name or gives a power of attorney to some one.

Deemster Judge in the Isle of Man. There are two deemsters who hold courts, one in the N. and the other in the S. division of the island, for the trial of offenders. The name, formerly used also in Scotland, means one who pronounces a doom or judgment. The late Sir Hall Caine published a novel called *The Deemster* in 1887.

Deeping George Warwick. English novelist. Born at Southend-on-Sea, in 1877, he was educated at the Merchant Taylors School, London, and at Trinity College, Cambridge. He took a medical degree in 1902 and practised for a short time. In 1903 he published a novel and hereafter, except during the Great War when he saw active service with the R.A.M.C., he devoted his time to writing, his reputation rising steadily with each work. They include: *Bertrand of Brittany*, 1908; *Martin Valiant*, 1917; *The Prophetic Marriage*, 1920; *Sorrell and Son*, 1925; *Old Pybus*, 1928; *Roper's Row*, 1929; and *The Elites*, 1930; *The Road*, 1931; and *New Wine and Old*, 1932.

Deer Family of solid-horned ruminants. They are found all over the world except in S. Africa and Australia. Their horns or antlers, which are shed and renewed every year, are borne by all the stags or male deer except the musk deer. They are also borne by the females of the reindeer.

Three varieties are found in Great Britain, the red, the roe, and the fallow deer. The

red deer is found wild in the Scottish Highlands and on Exmoor. There are also tame herds in various deer parks, where the fallow deer is also seen. The flesh of the deer called venison can be eaten. At one time it was an important article of diet, especially among the rich, hence every large house had its deer park.

To-day deerstalking is a popular sport in the Scottish Highlands, where over 3,000,000 acres are given up to deer forests. The season is from Aug. 12 to Sept. 12 for stags, and from Nov. 10 to March 31 for hinds, as the females are called.

Deerhound Breed of dog. A rough-haired, stoutly-built variety, of Scottish greyhound, it is used especially in deerstalking. Brindled, fawn or blue, it has long tapering head and stern, and well-attached loins. Quick-running, and keen-scented, it averages 90 lbs. in weight. The almost extinct Irish deerhound has reappeared by careful breeding.

Default In law a failure to do something. It is used when a person fails to defend an action brought against him. In such cases judgment is usually given for the other party.

Defence Protection against attack. In the United Kingdom the defence of the country from foreign enemies is in the hands of the navy, army and air force, each with its own organisation. It has been proposed that these should be combined into a single ministry of defence. To consider the defence problems of the British Empire there is a Committee of Imperial Defence with a secretariat at 2 Whitehall Gardens, London, S.W., 2. There is an Imperial Defence College at 9 Buckingham Gate, S.W. 1.

Several warships have borne the name *Defence*. One was the armoured cruiser that was sunk in the Battle of Jutland.

Defence of the Realm Form of martial law established in Great Britain by the Defence of the Realm Act, Aug. 8, 1914. Colloquially called D.O.R.A., it was consolidated, Nov. 27, 1915, and amended, Mar. 16, 1915. Under this legislation the King in council proclaimed during the Great War a multitude of regulations affecting every aspect of the national life. They concerned factories, railways, lights, bells, information, censorship, shop hours, enemy trading and food control. When the act lapsed an Emergency Powers Act, 1920, enabled the Government departments to keep many of its provisions in force, especially those concerned with the sale of food and drink.

Defender of the Faith Title, in Latin *fiduciarius defensor*, conferred on Henry VIII. in 1521. It was a recognition by Pope Leo X. of the King's treatise defending the seven sacraments. Withdrawn after the breach with Rome, Parliament reaffirmed it in 1534, and it remains part of the official designation of the British crown. Inscriptions on coins usually show *F. D.* or *fid. def.*

Deflation Removal of the contents of a gas bag, thus reducing its volume. By analogy it denotes a reduction in the amount of paper money in circulation. From 1911 to 1920 the volume of paper money increased enormously, especially in France and Germany, causing a great rise in prices.

To check this the amount of paper money was gradually reduced, bringing prices down, and this was known as deflation. See REFLATION.

Defoe Daniel. English writer. Born in London about 1659, he was the son of a butcher, James Foe. He studied at Stoke Newington to become a Nonconformist minister, but instead entered business life in London. In 1613 he married, and in 1685 took part in Monmouth's rebellion. He was in the army of William III. and soon after the revolution of 1688 began to write, first as a supporter of the King. In 1702 he wrote the ironical *The Shortest Way with the Dissenters*, to whom he still belonged, and for this he was put in the pillory and imprisoned. While in prison he started *The Review*, a landmark in the history of English Journalism. At first a weekly, after a time it was issued three times a week until it ceased in 1713.

In 1703 Defoe was released and for the next 25 years he was busy writing, though he found time to travel in Europe and to serve the government as a secret agent in Scotland and elsewhere. His many political writings have no permanent importance, but through them he exercised a potent influence on English Journalism, of which he was one of the founders. But great as is his title to fame, it is overshadowed by that of the author of *Robinson Crusoe*, the first part of which appeared in 1719. Some of Defoe's other books include, *The Journal of the Plague Year*; *The Political History of the Devil*; *The History of Colonel Jack*, and *A Tour through Great Britain*. His novels include *Moll Flanders*. Defoe lived at Tooting, where he was associated with a dissenting congregation, and then at Stoke Newington. He died at Moorfields, April 26, 1731, and was buried in Bunhill Fields. In 1931 the bi-centenary of his death was celebrated.

Degas Hilaire Germaine Edgar. French artist. Born in Paris, July 19, 1834, he studied there. He soon won a reputation by his paintings of dancing girls and was especially remarkable for his draughtsmanship. He died in Paris, Sept. 27, 1917.

Degeneration In biology a term used for modification in certain organisms representing changes from a higher to a lower type of structure. It often accompanies parasitism. This is seen well in the crustacean family of the fish lice, where in some the appendages are reduced, the eyes absent and the antennae represented by hooks, in others the body is vermiform and other parts are correspondingly reduced. In one type which is parasitic on crabs, the adult stage has the form of a large sac without mouth or appendages.

Dehra Town of British India. In the United Provinces, it is 70 m. from Ambala, and is a railway junction. It takes its name from the River Dehra and the district of which it is the capital is called Dehra Dun. Pop. 36,000.

Deira One of the early English kingdoms. It consisted of the land between the Tees and the Humber, and came into existence about 500, or later. A century or so later it was united with Bernicia and the two were called Northumbria. The boys seen by Pope Gregory in the slave market at Rome came from Deira.

Deism Belief in a personal God, detached from the world and recognised

by the light of reason. This current of rationalistic thought, denying Christianity and the supernatural authority of the Scriptures, was incipient at the Reformation. It emerged in England through the teachings of Lord Herbert of Cheshire, who in the 17th century laid down its 5 ruling principles, and of Blount, Tindal, Toland, Woolston, Middleton, the 3rd Earl of Shaftesbury, Collins and Bolingbroke. Their influence reached Voltaire, Rousseau and Diderot in France, Eberhard, Reimarus and Lessing in Germany. English deism encountered the strength of the evangelical revival, provoked Butler's *Analogy of Religion*, passed into the scepticism of Hume and preluded later developments of free thought. Deism is distinguished from theism, which regards God as in touch with His creation.

Dekker Thomas. English dramatist. He was born in London about 1570 and passed his life there, but little else is known about him. He was more than once in prison for debt, and died about 1632. Dekker wrote a number of plays, some of them in association with Ben Jonson, Webster, Massinger, Middleton and other dramatists of the time. His own include *The Shoemaker's Holiday* and *The Pleasant Comedy of Old Fortunatus*. With Middleton he wrote *The Roaring Girl* and with Ford and Rowley *The Witch of Edmonton*. He also wrote *The Gulls' Handbook*.

Delagoa Bay Opening of the Indian Ocean. It consists of an inner and an outer bay and the two form a wonderful harbour. It is on the E. coast of Africa in Portuguese territory, and on it is Lorenzo Marques. A railway runs from there to Pretoria, 350 m. away, and Delagoa Bay is the obvious outlet for the produce of the Transvaal. The ownership of the bay was a matter of dispute until 1875, when arbitration gave it to Portugal.

De la Mare Walter John. English poet and novelist. He was born at Charlton Kent, April 25, 1873, and educated at the choir school of St. Paul's Cathedral. From 1889 to 1908 he was employed by a business firm in London, but during this time he became known as a writer. His novels include *Henry Brocken* and *Memoirs of a Midwife*. He is best known, however, for his poems, *Songs of Childhood*, *The Listeners* and other poems, and further volumes. A collected edition appeared in 1920. He also wrote *Crossings*, a fairy play, and some volumes of stories.

Delamere Village and forest of Cheshire. The station is on the Cheshire Lines Rly. between Chester and Northwich. Of the forest much has been put to agricultural uses, but some of it remains a beautiful woodland area. The title of Baron Delamere has been borne since 1821 by the family of Cholmondeley.

Delane John Thaddeus. English journalist. The son of a barrister, W. F. A. Delane, he was born in London, Oct. 11, 1817. He went to King's College, London thence to Magdalen Hall, Oxford. In 1840 he joined the staff of *The Times*, and in 1841 was made editor. He had then become a barrister. He retired in Nov. 1877, and died, Nov. 22, 1879.

Delane did much to make *The Times* the foremost paper in the land. For nearly 10

years he dictated its policy and in so doing set an example of fearlessness and independence.

Delarocche Hippolyte, often known as Paul, French painter. He was born in Paris, July 17, 1797. He studied under Baron Gros and exhibited in the Salon from 1822 onwards. The most popular of his paintings are, "The Death of Queen Elizabeth" and "The Children of Edward IV.," but one of the greatest is the "Hemicycle," which decorates the amphitheatre of the Ecole des Beaux Arts, Paris. He is represented in the Wallace Collection, London. He died Dec. 11, 1856.

Delaware One of the Atlantic states of the U.S.A. This stretch of land along Delaware Bay covers only 2370 sq. m. Dover is the capital, but Wilmington is the largest town. Two senators and one representative are sent to Congress, and there is a general assembly of two houses to manage state affairs. Delaware became British in the 17th century, and was one of the 13 original states of the union. Pop. (1930) 238,380.

Delaware River of the United States. It rises in New York State in the Catskill Mts., and separates that state from Pennsylvania and later, Pennsylvania from New Jersey. It is 400 m. long and the chief town on its banks is Philadelphia. It is navigable to Trenton and is much used commercially. It falls into Delaware Bay, an opening of the Atlantic.

De la Warr Baron. English title. It dates from 1299, when Roger de la Warr, a landholder in Sussex, became a baron. In 1426 it was inherited by Reginald West, a descendant in the female line. His descendant, Thomas, the 12th baron (1577-1618), was the first governor of Virginia. The state and River of Delaware were named after him. John, the 16th baron, was made an earl in 1761. The 5th earl married a daughter of the Duke of Dorset, and since then the family name has been Sackville-West. Herbert Edward Sackville who became the 9th earl in 1915, was a member of the Labour ministry in 1924 and again in 1929-31, and joined the National Government as Under-Secretary for Agriculture.

Delcassé Theophile. French statesman. Born at Pamiers, Mar. 1, 1852, he became a journalist. In 1889 he entered the Chamber of Deputies, and in 1892 was made under secretary for the colonies. In 1894 he was made colonial minister and, after three years out of office, he was chosen foreign minister in 1898. He retained that post for 7 critical years until the dislike felt by Germany for his policy compelled him to resign in 1905. He then became minister of marine which position he left in 1913 to become ambassador to Russia. In 1914 he again became foreign minister, but he resigned in Oct. 1915. Delcassé, who died Feb. 21, 1924, had a good deal to do with bringing about the informal understanding between Great Britain, Russia and his own country, which materialised at the outbreak of war in 1914. In foreign affairs he was the outstanding figure of the Third Republic.

Delft Town of South Holland. It is 5 m. from the Hague, on the little river Schie and is connected with the capital by river, rail and tram. The so-called "new" church is dedicated to S.

Ursula, and contains the burial place of the Orange family and a memorial to William the Silent. The house in which William was killed is now a museum. Agneta Park is an industrial quarter. The town has some manufactures and a trade in agricultural produce. Pop. 49,700.

In the 17th century Delft was famous for its porcelain. This became a flourishing industry and early pieces are very valuable. They are usually in blue with scenes from Dutch life crowded on to them.

Delhi City of India, the capital of the Empire since 1911. It stands on the Jumna, 954 m. N.W. of Calcutta. Until 1911 it was in the Punjab, but when it became the capital it was, with the surrounding district of 553 sq. m. placed directly under the Government and ruled by a Chief Commissioner.

There have been several cities on or near the site. The present one was built by Shah Jehan in the 17th century and his work is seen in the palace, or fort, and the grand mosque, both unique buildings, the fort being entered by the famous Lahore Gate. The tomb of Humayun is also notable. Its native industries include metal work, ivory carving, weaving, etc. The modern ones include flour milling and cotton spinning.

About 5 m. to the S.W. is the new city of Delhi. This has wide roads and large open spaces, all laid out on a definite plan to give unity and beauty to the place. A vast circular block of buildings with halls for the various parts of the legislature, a large library, and the viceroy's house was formally opened in 1930. A university was opened in 1922. Pop. (1931) 365,883.

Delilah Phillistine woman beloved of Samson. He revealed to her that his strength lay in his hair, so she treacherously cut this off, and betrayed him to his enemies. The story is told in Judges xvi., 4-31.

Delirium Condition of mental disorder, generally accompanying a specific bodily disease. More or less temporary, it is a symptom of disease and treatment should be directed to its predisposing cause. It may display slight occasional incoherence, vivid hallucinations, violent manual acts and more or less of coma. **Delirium tremens**, an acute disorder supervening on chronic alcoholism, is marked by trembling, especially in the early stages. Having delirium may accompany acute fevers and alcoholism and induce attempts at suicide.

Delius Frederick. British composer. He was born of German parents, Jan. 29, 1863, in Bradford, Yorkshire, and in 1883 he went to Florida as manager of an orange plantation. He gave up business for music, to which he had hitherto devoted his leisure, and in 1886 went to Leipzig where he studied composition. In 1890 he settled in Paris. His important works include concertos for violin, violoncello, piano and violin and cello combined; *Appalachia*, *Sea-Drift*, *Requiem*, and other choral works; *Paris Brigg Fair*, *On Hearing the First Cuckoo in Spring* and other orchestral works. In 1932 he produced an opera, *Koanga*. *A Village Romeo and Juliet* is his best known musical drama. He was made a Companion of Honour in 1929, and six festival concerts were held in his honour in London.

Della Robbia Family of Florentine artists which gave its

name to a famous ware. Luca della Robbia (1399-1482) brought to perfection the art of enamelling terra cotta. His nephew, Andrea (1435-1525) produced fine examples of enamelled reliefs adapted to friezes and medallions. He died in 1525, leaving five sons, three of whom were notable artists. There are examples of Della Robbia ware in the museum at South Kensington.

Deloraine District of Selkirkshire, Scotland, long associated with the Scott family. The title of Earl of Deloraine was given in 1706 to Henry Scott, a son of the Duke of Monmouth. It became extinct in 1807 when the 11th earl died. Deloraine is the name of a town of Tasmania. It is 32 m. from Launceston and is an agricultural centre.

Delos Smallest of the Cyclades Islands in the Aegean Sea. A floating island, Zeus made it stable, to provide a refuge for Latona, who there gave birth to Apollo and Artemis. On it there was a magnificent temple of Apollo, now being excavated by the French. Made a free port by the Romans, it prospered greatly. A league formed by Athens and other cities in 477 was called the **Delian League**, and its treasury was for a time at Delos.

Delphi In ancient geography, a town in Phocis, on the slope of Parnassus. It was the seat of the oracle of the Pythian Apollo, and was supposed to be the centre of the earth. Greek cities and foreign princes sent rich presents to Delphi, and placed their treasures under the protection of the god. The modern name is Kastri.

Delphinium Genus of hardy ranunculoid plants, both biennial and perennial. Delphiniums bear tall spikes of blue, mauve, or purple blooms, in many beautiful varieties. They are grown from seed planted in April, and the seedlings transplanted for blooming the following year.

Delta Fourth letter of the Greek alphabet. The word is used for the mouths of rivers which bring down a great deal of alluvial deposit forming a mass round which the stream flows in two or more branches. The delta of the Nile is the most famous. The delta of the Ganges--Brahmaputra covers 50,000 sq. m., and that of the Mississippi 12,000. Other rivers with deltas are the Danube and the Rhône.

Delta Metal Class of brass alloys which contain iron in addition to copper and zinc, but extended now to brasses containing manganese, tin and aluminium as well as iron. Iron increases the strength of the alloy, and the other additional metals impart particular properties. Delta metal is very fluid when melted, producing fine-grained sound castings, and it can be worked either hot or cold.

Deluge Great flood, pre-eminentlly that described in Genesis as overwhelming all living beings except Noah, his family and the animals which accompanied them in the ark. The Biblical story is paralleled in early Babylonian literature and in folklore all over the world. Excavations at Ur and Kish (q.v.) have revealed deluge floors and antediluvian remains supporting the view that the story concerned local floods in the Euphrates valley.

Delville Wood Small wood in France. It covers about 160 acres and is between Longueval

and Ginchy. On July 15, 1916, it was taken from the Germans, after terrible fighting, by the S. Africans. The Germans retook it in March, 1918, but lost it again in August. In 1920 the wood was bought by the S. African Government, and a memorial to the S. Africans erected there.

Dementia Mental feebleness. It may follow mania and other acute mental diseases. There is a specific form of dementia called dementia paralytica—or general paralysis of the insane—in which there is marked physical deterioration as well as mental. It is a fatal disease, though recently it has been treated with induced malaria, with good results. Senile dementia, the general enfeeblement attending advanced life, accompanies arterial degeneration. Dementia praecox is a form occurring at puberty. Dementia affects a mind that is previously formed; amnesia is mental deficiency from birth.

Demerara River of British Guiana. It rises in the highlands of the colony and enters the sea at Georgetown. Its length is 180 m. and it is navigable for 90.

Demerara is also the name of a district between this river and the Berbice River. It gives its name to the brown sugar which was first produced here.

Demeter In Greek mythology, one of the Olympians. She was the goddess of the products of the fields and the protectress of marriage. She is best known for the rape of her daughter Persephone (Proserpina) by Pluto, god of the underworld, and her wanderings to find the lost child.

Democracy Term used for the rule of the people. A democracy is a state in which the people, either directly or indirectly through representatives, decide their own affairs.

The earliest democracies were the Greek states, but these were small and every citizen could take a personal part in the deliberations. Something of this kind was the custom among the Anglo-Saxons and other Teutonic tribes and through these the idea of self-government was kept alive.

Partly through the influence of the Church, the representative system was evolved upon which the great modern democracies work. In all of them, whether kingdom as Britain, or republic, as France, the will of the people, as expressed in voting for their representatives, is the ultimate authority. The people, long considered as being only the adult males, have come in the 20th century to include also the adult females.

At the same time a certain impatience with democracy, once regarded as an ideal system, has manifested itself. In some countries a dictator has superseded assemblies elected by the people. In Italy this movement against democracy has taken the form of Fascism.

Democratic Party Political party in the U.S. It arose soon after the formation of the Republic, and the presidents from 1801 to 1861 were nearly all Democrats. Since then only Grover Cleveland in 1881 and 1892, and Woodrow Wilson in 1912 and 1916 have secured election. Its candidate at the election of 1928 was Alfred Smith, Governor of New York, who was defeated by Mr. Hoover. In 1932 Franklin Roosevelt was selected as candidate.

Democritus Greek philosopher, called the "father of physics."

Born at Abdera, in Thrace, about 460 B.C., he died about 370 B.C. Following Leucippus, he propounded an atomic theory of the universe, wherein all is movement in space. The soul is material, there is no Deity, and the *summum bonum* is pleasure without pain.

Demonology Study of supernatural beings below divine rank, conceived as influencing mankind. The generalised animistic spirit world became specialised into corn demons, disease demons and others. Such spirits, all nameless, were recruited from discarnate spirits, departed human and animal souls, and its offspring of *incubi* and other obsessions. The attribution of personal names converted polydaemonism into polytheism, the unnamed spirits becoming agents of divine powers. The idea of moral dualism separating benignant angels from malignant demons, is a belief which characterises much popular superstition.

Demosthenes Greek orator. Born in Athens in 384 B.C. he began his career as a speaker by pleading against the guardians who had robbed him of his property. When addressing the people he faltered through faulty pronunciation, so he went into retirement in order to overcome this defect. He then reappeared in Athens and made successful speeches in the courts.

Turning to political life, Demosthenes employed all his energies in opposing the designs of Philip of Macedonia on Greece. He fought in the Athenian army at Chacrona in 338, but fled from the field in the disastrous defeat. After the death of Philip in 336 he took the lead in opposing his son Alexander. In 324 he was imprisoned for laxity in safeguarding the public funds entrusted to him, but he escaped and lived for a time in exile. In 322 he was recalled to Athens and he led an expedition against Antipater of Macedonia. This was beaten at Crannon and Demosthenes committed suicide on the islet of Calauria. Many of his speeches have survived. The greatest are *De Corona* (on the crown), delivered after some Athenians had proposed to give him a golden crown, and the *Philippics*, against Philip of Macedonia.

Dempsey Jack. Irish-American pugilist. Born in 1895, his real name is Wm. Harrison. He was a lumber jack before taking up pugilism and came into prominence when he defeated the world's heavy-weight champion, Jess Willard, at Toledo in 1915. He remained champion until 1926, when he was beaten by Gene Tunney. After his defeat by Tunney, Dempsey became a film actor.

Demurrage Shipping term. When goods are shipped the charterer of the vessel signs a document, known as a charter party, setting out the conditions of the transaction, including the number of days allowed for loading and unloading. If the stipulated time is exceeded a charge, known as demurrage, is made for each day in excess.

Denarius Principal silver coin of republican and Imperial Rome. It was originally of the value of ten asses (about 9d.). The *denarius* of the reign of Tiberius is the penny of the New Testament. About A.D. 215 it was so debased that it contained only 40 per cent. of pure silver.

Denbigh Borough and market town of Denbighshire, also the county town, 30 m. from Chester, on the L.M.S. Rly. There are ruins of a castle and a priory, some

manufactures and a trade agricultural produce. Pop. (1931) 7219.

The title of **Earl of Denbigh** has been held by the family of Fielding since 1622. The Earl's eldest son is called Viscount Fielding. His seat is Newnham Paddox, Warwickshire.

Denbighshire County of N. Wales. It has a short coastline on the Irish Sea, beautiful scenery, and, in the E., lead and coal mines. Denbigh is the county town; other towns are Wrexham, Luthin and Conway. In the county are Colwyn Bay, Llangollen and other pleasure resorts. The rivers include the Dee, Conway and Clwyd. The area is 665 sq. m. Pop. (1931) 157,645.

Dendrite Crystalline structure in certain minerals. In it the crystals diverge from one another and from a common axis so as to resemble a leaf or tree-like growth. This is seen in native copper and pyrolusite occurring in sandstone.

Dene-hole Ancient excavation, chiefly found in Essex and Kent, S.E. England. At Grays, Essex, scores of them lie closely together. They are bell-shaped chambers, sometimes with apses in three and are reached by vertical shafts, 3 ft. across, sunk through the sand for a distance up to 60 ft. The chambers were from 16 to 20 ft. high. Sometimes utilised subsequently for refuges, the Britons perhaps sank them as silos for storing wheat.

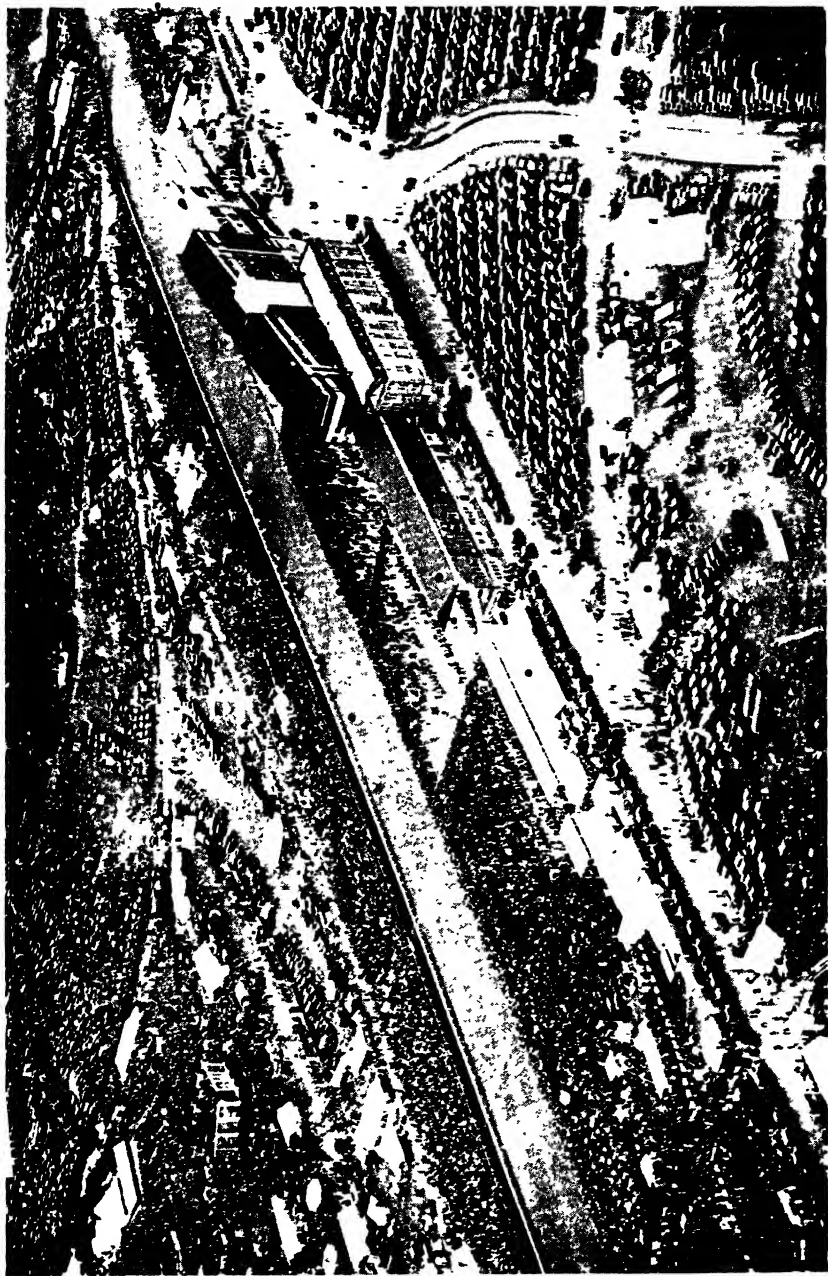
Denham Village of Buckinghamshire. It is 2 m. from Uxbridge and 11 from London, on a joint railway. Denham Court and Denham Place are noteworthy houses. Denham has become an outer suburb of London.

Denis French saint. He was born in Italy and sent into Gaul as a missionary in the time of the Emperor Decius. He became Bishop of Paris, but about 275 he was beheaded by the Roman governor at Catullacus (now St. Denis), and his tomb became the site of a priory. In 625 Dagobert founded a monastery there and many French kings were buried therein. Later, a Denis or Denys was made the patron saint of France. His day is Oct. 9.

Denman Lord. English lawyer. Born in London, July 23, 1779, Thomas Denman was educated at Eton and St. John's College, Cambridge. In 1806 he became a barrister and made a reputation by defending Queen Caroline in 1820. In 1830 Denman was made Attorney-General and in 1832 Lord Chief Justice. He died Sept. 22, 1854.

Denman's title, created in 1831, came in 1894 to a great-grandson, another Thomas Denman. He, the 4th baron, married a daughter of Viscount Cowdray and was Governor-General of Australia, 1911-14.

Denmark Country of Europe. It consists of a piece of land on the mainland and several islands, among them Zealand, Funen, Falster and Bornholm. It includes part of Slesvig, which was restored to Denmark in 1919. The total area is 16,568 sq. m. and the pop. (1930) 3,550,656. In addition Denmark owns Greenland and the Faroe Islands. Iceland is independent, but is under the same king. Copenhagen is the capital and the largest town. Other centres are Aarhus, Odense, Aalborg, Horsens and Randers. The borders of the country are the sea, except where in the south Denmark touches Germany. Much of it is very fertile and by



THE DERBY.—An air view of Epsom Downs and the famous race-course on Derby Day, showing the crowded car parks, the stands packed with spectators and the horses passing the finishing post. (Hobart)

intensive methods of cultivation its production of butter, eggs and bacon is very large, something like £50,000,000 being sent into the United Kingdom in a year. The fisheries are valuable. The unit of currency is the krone, worth about 1s. 1d., and the metric system of weights and measures is in use.

Denmark's early history is very closely connected with that of the other Scandinavian countries, and at one time all were under the same ruler. The union was dissolved in 1418, when Denmark chose a king of the house of Oldenburg, but Norway and Denmark were united until 1815. In 1863 there was a crisis on the extinction of the ruling family. Christian IX. of Slesvig-Holstein was chosen king, but Slesvig and Holstein were taken by Prussia after a short war. In 1912 Christian X. succeeded his father, Frederick VIII., as king.

The parliament, or *Rigsdag*, consists of two houses and the actual control of affairs is in the hands of a council or cabinet. There is an army raised by universal service and a small navy. Lutheranism is the state religion. The socialists are very strong in the country and formed the largest party in Parliament after the election of 1929.

Denmark Hill Suburb of London. It is in the borough of Camberwell, on the south side of the river. Here is King's College Hospital.

Denotation In logic all that is included in a term. Its opposite is connotation, which means the properties of a thing. Thus, man denotes all human beings, whether white, yellow, black or red. Man connotes certain possessions, such as a brain, two arms and two legs.

Density Property of matter. It is defined as the amount or mass or matter in a unit of volume of a substance. The unit of density for solids and liquids is taken as that of distilled water, and the ratio of density of a substance to that of water is termed specific gravity.

Denstone Village of Staffordshire. It is 5 m. from Uttoxeter, on the L.M.S. Rly. It is chiefly known for its Church of England school for 300 boys, founded in 1873.

Dent Word of twofold origin. As a variant of O.E. *dent*, it denotes a hollow produced by blow or pressure. Maize, because each kernel is depressed, is called dent corn. When denoting a notch it is confused with the Latin word for tooth (*dens*). The French form often designates tooth-like Alpine peaks, e.g., the Dent du Midi.

Dentist Specialist practitioner concerned with diseases of the teeth and their treatment. In Great Britain dental practice was systematised by the Dentists Act, 1878, which instituted a register in the charge of the General Medical Council. Unregistered persons were forbidden to use the term dentist or dental practitioner.

Since 1921 no person can be registered unless he or she has passed through a course of training in the medical and dental schools in London and elsewhere. The usual degree is B.D.S. or licentiate in dental surgery, given by the Dental Board at 14 Hallam Street, London, W.1. The interests of the profession are looked after by the British Dental Association at 23 Russell Square, London, W.C. 1.

Dentistry Department of curative practice for diseases of the teeth, their conservation, extraction and arti-

ficial replacement. It studies the therapeutics of the month, applying operative surgery for conserving, and prosthetic surgery for substituting. Dental practice arose in antiquity. Filling appeared in the 9th century, gold-foil treatment in the 16th century, gold-capping shortly after.

Fauchard, who wrote *Le Chirurgien dentiste*, 1728, the father of modern dentistry, introduced specialised training, the bow and drill—precursor of modern dental engines—porcelain instead of ivory for artificial teeth, and the retention of upper dentures, as false teeth began to be called, by suction. Great advances were the invention of metallic and vulcanite bases for dentures, and the introduction of anaesthetics by gas administration or local injection. Nowadays systematic attention is given to mouth hygiene in early years, the correction of badly grown teeth, and the inculcation of cleanly habits. There are organised services in elementary schools and other institutions, dental hospitals, and an army dental corps. The Royal Dental Hospital of London is in Leicester Square, and in 1930 the Eastman Dental Clinic, said to be then the finest in the world, was opened at the Royal Free Hospital, London, W.C.

DENTISTRY AS A CAREER.—There is a growing demand for properly qualified dentists, and good monetary rewards can be obtained both from private practice and from public appointments. The extension of school and clinic dentistry provides, more and more promising openings for women in the profession.

Before he is legally entitled to practise, a student must have his name entered on the Dentists' Register, and to qualify for this he must have obtained one of certain recognised Diplomas or Degrees. The majority of the universities and some outside bodies grant a Diploma and at a number of the universities degrees in Dental subjects may also be taken.

Information is obtainable in the first instance from The Registrar, Dental Board of the United Kingdom, 44 Hallam Street, London, W.1.

At many hospitals and schools special arrangements are made for women students. Communications should be addressed to the Deans of the schools or the Registrars of the universities.

The fees payable for the Diploma Course vary considerably, but the following may be taken as an example.

Pre-registration subjects	24	10	0
Total tuition fees (payable in instalments)	280	0	0
Books, instruments, etc.	75	0	0
Club subscriptions, admission fees, etc.	26	5	0
Examination fees	21	0	0
Total	422	15	0

Scholarships are frequently available.

Dentition Arrangement of the teeth in vertebrate animals. Absent from birds, they are supplemented in reptiles and fishes by accessory teeth on the palate. Their conformation and number vary in different orders. In mammals, those in the foremost jawbones, usually one-rooted, are incisors; those in the jaw proper generally include on each side a long, pointed, one-rooted canine and several grinding teeth, usually with two or more roots, those being premolars and the hindmost molars. In most mammals the permanent teeth are preceded by a set called the "milk teeth."

Denton Market town and urban district of Lancashire. It is 7 m. from Manchester, on the L.M.S. Rly. Hat making is the main industry. Pop. (1931) 17,383.

Denton Park, near Otley in Yorkshire, was long the seat of the Fairfax family.

Denudation Action of the weather, rivers and sea upon rocks. It causes the disintegration of rock masses and the transport of the looser material to lower levels. Subaerial denudation is due to frost, glaciers, changes of temperature, wind, rain and the chemical action of solvent waters of rivers. By denudation, a granite may be decomposed into micaceous sands and chert, while sedimentary rocks are built up from the debris of older ones.

Denver City and capital of Colorado, U.S.A. It stands on the South Platte River, near the Rocky Mts. with university, zoological and botanical gardens and an observatory. Denver is an important railway junction and the market centre for the produce of Colorado. There are some manufactures. Pop. (1930) 287,861.

Deodar Coniferous evergreen tree, similar to the cedar. It forms extensive forests in the Himalayas at an altitude above 7000 ft., and also grows in Baluchistan and Afghanistan. It sometimes reaches a height of 200 ft. The timber, which is light red in colour and very durable, is valuable in cabinet making.

Deportation System of punishing criminals by transporting them to penal settlements outside the country they inhabit. The system is no longer practised in England, although undesirable aliens can be expelled. Criminals were at one time transported to Virginia, and later to Australia, but the practice was abolished in 1856. In France and certain other countries the system of deportation is still maintained for the worst type of criminals.

Deposit Name applied to anything separated or laid down, e.g., in chemistry the sediment of a liquid, and in geology a bed of material accumulated by natural means.

The word is also widely used for an initial payment as an earnest of good faith against which goods are delivered in a business transaction, and for a sum of money paid into a deposit account in a bank, withdrawal being subject to notice and interest being allowed.

Deposition Evidence given on oath in a court of law. It is particularly used for an affidavit, i.e., a statement, taken down in writing, to the truth of which the deponent afterwards swears.

Deposition Process by which strata are formed by the action of water. These strata represent the sediment deposited by streams, lakes or the sea. At a river mouth transported material will be sorted into gravel and sand near the shore with clay and mud farther seaward. Marine deposits are represented by organic oozes and in the greatest depths by a fine red clay.

Depôt French word meaning laid down, and used in England specifically for a place where goods are stored, e.g., a furniture depôt. In America the word is used for a railway station for goods or passengers, but in England it is used in this connection only for a goods station. In military matters, a depôt is

a centre where recruits are received and trained. Each regiment has its depôt.

A **depôt ship** is a ship that carries stores for a fleet at sea.

Depreciation Term used to denote a fall in value. In particular it is applied to the percentage written off the book value of assets to reduce them to their market value. The Companies Act permits a company to pay dividends only out of profits, and to arrive at an accurate computation depreciation must be allowed for. Income-tax legislation allows certain deductions on account of depreciation from profit for tax purposes.

Deptford Borough of the County of London. It is on the south side of the Thames between Bermondsey, Camberwell, Lewisham and Greenwich, with a short frontage on the river. The parish church is an interesting building. It includes much of the New Cross district. Deptford is chiefly famous for its associations with the navy. It had a dockyard and a victualling yard in the 16th century or earlier. John Evelyn's home, Sayes Court, was in Deptford. Peter the Great of Russia (gr.) worked in the dockyards as a craftsman. Pop. (1931) 106,886.

Depth Charge Form of submarine mine first used in the Great War. It consists of a charge of explosive so arranged as to explode at a given depth. The mine consists of a steel case provided with rings at either end for handling and enclosing a charge of explosive. At the centre is a primer or detonator above which is placed the timing apparatus or "pistol."

Deputy Name applied in France and elsewhere to the members elected to the chamber of deputies. A clerk of the peace, a recorder, or a county court judge may appoint a deputy, but judges of the supreme court cannot do so. In the city of London each of the aldermen has a deputy for his ward.

De Quincey Thomas. English writer. Born in Manchester, Aug. 25, 1785, he was educated at Worcester College, Oxford, and afterwards lived in the Lake District, where Wordsworth and Coleridge were among his friends. He married Margaret Simpson, and earned a living writing for the magazines. In 1828 he moved to Edinburgh and he died there, Dec. 8, 1859.

A man of powerful intellect, a wide reader and a real student, with an extensive knowledge of Greek, German and other languages, De Quincey's career was marred by his addiction to opium. Nevertheless he ranks as one of the great writers of imaginative prose. His *Confessions of an English Opium Eater* first appeared in *The London Magazine*. Notable, too, are his essays *On Murder Considered as One of the Fine Arts*. His essays show that he possessed considerable critical ability. They deal with philosophy, literature and history. A delightful piece is *The English Mail Coach*. He also wrote on political economy and produced one novel.

Derating Term used in Great Britain for the system of relieving property from rates. By the important Local Government Act of 1929, agricultural land was entirely relieved of rates and premises devoted to productive industry, including railways, from three-quarters of their rates. The loss to the local authorities is made good from the national exchequer.

Derby City of England, the county town of Derbyshire. It stands on the

Derwent, 129 m. from London, on the L.M.S. and L.N.E. Rlys.

Derby's chief industry is the manufacture of rolling stock for the L.M.S. Rly. Until 1921 it was the headquarters of the Midland Rly. There are motor car works and other branches of engineering are carried on. Other products are lace, hosiery, silk, chemicals and chinaware. The diocese of Derby covers the county and was created in 1927. The city has a famous Association football club, Derby County. Pop. (1931) 142,406.

Derby gave its name to a famous kind of porcelain known as **Crown Derby**. This was first made in 1750 and is still produced, although not by the original firm. There is a fine collection in the museum.

Derby The. Most famous horse race in the world. It was founded in 1780 by the 12th Earl of Derby and is run at Epsom on a Wednesday in May or June. The course is 1½ m. long, and the race is confined to three-year-old horses. Since 1900, except during 1915-18, when the race was not run, the winners and owners have been:

1900	DIAMOND JUBILEE	Prince of Wales
1901	VOLUNTARIUS	W. C. Whitney
1902	ARD PATRICK	J. Gubbins
1903	ROCK SAND	Sir J. Miller
1904	ST AMANT	Lord Rothschild
1905	CICERO	Earl of Roschewy
1906	SPRINGMINT	Major E. Loder
1907	ORBY	Mr. Croker
1908	SHIRAZINETTA	Ches. Ginstrell
1909	MINORU	King Edward VII.
1910	LEMBRO	"Mr. Friele"
1911	SPRINGSTAR	J. B. Joel
1912	DAVID	W. Raphael
1913	ABOLIVER	A. P. Cunliffe
1914	DURBAR II.	H. B. Durva
1915	GRAND FLEET	Lord Gladwin
1920	STIRION KOP	Capt. G. Loder
1921	HEMORISE	J. B. Joel
1922	CAPTAIN CUTLER	Lord Woolavington
1923	PAPYRUS	B. Irish
1924	MANNING	Earl of Derby
1925	MANNA	H. E. Morris
1926	CORINACH	Lord Woolavington
1927	CALL BOY	F. Curragh
1928	DISCARD	Sir H. (Whitely)-Owen
1929	TULLO	W. Beckett
1930	BEFNUHIM	The Aga Khan
1931	CAMERONTAN	J. A. Dewar
1932	APRIL THE FIFTH	Tom Wallis

Derby Earl of. English title borne by the family of Stanley since 1485. Earlier it had been held by the family of Ferrers. Thomas, Lord Stanley (died 1501), was made an earl by Henry VII., whose mother he had married as his second wife. James, the 7th earl, was Lord of the Isle of Man, and his wife, Charlotte, was famous for her defence of Lathom House during the Civil War and for her activities in the Isle of Man. The direct line died out in 1736, when Sir Edward Stanley, a descendant of the 1st earl, became the 11th earl. Lathom House is the old seat of the family, but the earl's chief seat is now Knowsley, near Liverpool.

Derby Earl of. English statesman. Born at Knowsley, March 29, 1799, he was educated at Eton and Christchurch, Oxford. He entered the House of Commons in 1820, and sat for a succession of constituencies until he was made a peer in 1841, seven years before he succeeded to the earldom. At first a Whig, he was Under Secretary for the Colonies in 1827, and in 1830 Chief Secretary for Ireland. In 1833, having supported the Reform Bill, he was made Secretary for War and the Colonies, but, having the slaves in the West Indies, he resigned ... 1834. In 1841 he became Colonial Secretary under Peel, and after 1846

came out as the leader of the Conservative party. In 1852 Derby became Prime Minister, and he held that office again in 1858-59 and 1866-68. He died at Knowsley, Oct. 23, 1869. Derby, who declined to become King of Greece in 1863, was known as the "Rupert of Debate."

Two of Lord Derby's sons succeeded in turn to the earldom and both were prominent in public life. **Edward Henry Smith Stanley** (1826-93), who became the 15th earl, sat in the House of Commons from 1848 to 1869. In 1858-59, as President of the Board of Control, he became the first Secretary for India. In 1866-68 he was Foreign Secretary as he was from 1874-78, but he resigned in 1878 because he disliked Disraeli's foreign policy. He then became a Liberal and was Secretary for the Colonies, 1882-85. He died April 21, 1893.

Frederick Arthur Stanley (1841-1908), who became the 16th earl, was a soldier. Having sat in Parliament from 1865 to 1886, he was made Baron Stanley of Preston in 1886. He was Secretary for War, 1878-80, and Colonial Secretary, 1885-86. He was President of the Board of Trade, 1886-88, and Governor-General of Canada, 1888-93. He died June 14, 1908.

Derby Earl of. English nobleman. **Edward George Villiers Stanley** was born April 4, 1865. After service in the Grenadier Guards, he entered the House of Commons in 1892 and sat therein until 1906. In 1895 he was made a Lord of the Treasury; in 1900 Financial Secretary to the War Office, and he was Postmaster General, 1903-05. He was Press Censor during the S. African War, and in 1908 became Earl of Derby. In 1915 he was made Director General of Recruiting and was responsible for the Derby Scheme, the last effort to obtain men for the army by voluntary means. It added about 850,000 to the forces. In 1916 Derby was made Under Secretary for War, and a little later he became Secretary. From 1918-20 he was ambassador in Paris, and from 1922-23 was again Secretary for War. He was known as an owner of racehorses until his stables were closed in 1930. Lord Derby's two sons, Lord Stanley and Hon. Oliver Stanley, were both elected to Parliament in 1921 and 1929, and the latter made a name as a speaker. In 1931 he was made Under-Secretary to the Home Office.

Derbyshire Inland county of England. It is divided geographically into two distinct portions. In the north is a mountainous and picturesque region called the Peak; in the south is a level region where coal is mined. The chief rivers are the Derwent and the Dove. Derby is the county town. Industrial centres include Alfreton, Belper, Chesterfield, Glossop and Ilkeston. Buxton, Bakewell and Matlock are pleasure resorts, and the county contains Chatsworth, Haddon, Hardwick and many beauty spots in the Peak district, including Castleton with its caves. Its area is 1016 sq. m. Pop. (1931) 757,332.

Dereham Urban district and market town of Norfolk; in full East Dereham. It is 122 m. from London, and 22 from Norwich, on the L.N.E. Rly. The place has an agricultural trade. Pop. (1931) 5611.

Derelict Property abandoned by the owner in a manner which indicates that he disclaims all right to it. More particularly it is used for ships abandoned at sea by their crews. Derelict ships, picked up and brought to British ports, are kept by the

receiver until the owner can be found, but not for a longer period than a year and a day.

Derg Name of two loughs or lakes of Ireland. One is in the south of Donegal and covers 25 sq. m. On it are several islands, on one of which is a cave called St. Patrick's Purgatory, once a popular place for pilgrims. The river Derg flows from here to the Moyle, 17 m. away.

The other Lough Derg is a widening of the Shannon between Killaloe and Portumna. It is 21 m. long.

Dermatitis Inflammation of the skin. The term usefully comprehends all such affections, whatever their cause. Some types arise from local irritation, sunburn, frostbite, X-ray exposure, vegetable toxins such as poison ivy, animal parasites and ringworm fungi. **Blastomycetous dermatitis** is due to a yeast. **Occupational dermatitis**, arising from external irritants, such as tars and dyes, usually develops eczema-like forms.

De Ros Baron. English title. It dates from 1264 and is one of the oldest in the peerage. Its first holder was Robert de Ros, and it was held by his descendants until 1508. It passed to the Manners and then to the Villiers family, and from 1687 to 1806 was in abeyance. In 1806 it was given to the Fitzgerald family, and in 1907 it came to a daughter of the 21st baron, who became also Countess of Dartrey. It passed in 1920 to her son, Anthony Lucius Dawson.

De Rougemont Name taken by Henri Louis Grin. Born in Switzerland, Nov. 9, 1817, he travelled in Australia, and later, in London, described the wonderful adventures he had met with among the Australian aborigines. His narrative was published in *The Wide World Magazine*, and he lectured before the British Association at Bristol. Later it was discovered that Grin's stories were almost wholly imaginary. He died in the infirmary at Kensington, June 9, 1921.

Derrick Stationary crane used in constructing buildings. In it the inclination of the projecting arm or jib can be altered by letting out, or hauling in, the stay or supporting chain. A derrick can be rotated through part of a circle and may be mounted on a tower to increase the height of the lift.

Derry Old name for the city and county in Northern Ireland now known as Londonderry (q.v.). Its bishop is still called the Bishop of Derry.

Dervish Moslem devotee. Throughout Islam the word denotes a monk, in Turkey and Persia a wandering mendicant, called in Arabic-speaking countries a fakir. There is a loose relationship with Hindu fakirs. Thirty fraternities, with innumerable sub-orders, include the Kalandarite order, the familiar calendars of the *Arabian Nights*, Rifa'ite, or howling dervishes, Mevlevite, or dancing dervishes, and the modern Senuusi. Each fraternity has its directing sheikh, garb, rule and ritual.

Derwent Name of several English rivers. One is in Derbyshire, a tributary of the Trent. It rises in the Peak and flows past Matlock and Derby, being 60 m. long. Its water is used to supply Sheffield, Nottingham, Leicester and Derby.

Another Derwent is in Yorkshire. This is a tributary of the Ouse and is navigable to Malton; it is 70 m. long and is united by canal with Pocklington.

Another Derwent, 35 m. long, is in Cumberland. It passes through Derwentwater and Bassenthwaite on its way to the Solway.

A river between Northumberland and Durham is a fourth Derwent. A tributary of the Tyne, it is 30 m. long.

There is a Derwent in Tasmania. This flows for 130 m., from Lake St. Clare to Hobart.

Derwentwater Lake of Cumberland. It is beautifully situated near Keswick and is formed by the river Derwent. It is 3 m. long and about a mile wide. In it are several islands. Friar's Crag, now the property of the National Trust, is one of several beauty spots. At the head of the lake are the Lodore Falls.

The title of **Earl of Derwentwater** was borne by the family of Radclyffe from 1688 to 1716. James Radclyffe, the 3rd earl, joined the Jacobites in 1715 and was captured and executed in London, Feb. 24, 1716. He figures in the ballads of the times. The male line of this family died out in 1811. The *Alora Borcalis* is called in Cumberland "Lord Derwentwater's Lights."

Desborough Lord. English nobleman. William Henry Grenfell was born Oct. 30, 1855, and educated at Harrow and Balliol College, Oxford. At the university he was famous as an oarsman and a runner. From 1880-85 he was a Liberal M.P. for Salisbury, and he sat in the Commons as a Liberal Unionist, 1885-86, 1892-93 and 1900-1905. In 1905 he was made a baron. Two of Lord Desborough's sons, Julian and Gerald, were killed in the Great War; the remaining one was killed in a motor accident. His residence is Taplow Court, near Henley, Bucks.

Descartes René. French philosopher and mathematician. Born in Touraine, March 31, 1596, he was educated by the Jesuits, but never accepted their teaching. He saw a certain amount of military service in France and Germany, and in 1628 settled in Holland. In 1619 he went to Stockholm, where he died, Feb. 1, 1650.

The founder of the Cartesian system of philosophy, Descartes is one of the world's great thinkers. His fundamental principle is the dominance of thought, expressed as "I think, therefore I am." His ideas are set out in his *Discours de la Méthode*, and more fully in *Méditations de Prima Philosophia* and *Principia Philosophiae*. Equally eminent as a mathematician, Descartes is regarded as the founder of analytical geometry.

Deschanel Paul Eugene Louis. French politician. He was born in Belgium, Feb. 13, 1836. He received his education in Paris and entered the public service in 1876. In 1885 he entered the Chamber of Deputies, and in 1898 was elected its president; he held the post until 1904 and was again president from 1912 to 1920. In 1920 he was chosen President of the Republic in succession to Poincaré. A little later he became an invalid, resigned office in Sept. 1920, and died April 28, 1922.

Deschanel won fame as an orator and a writer. His books include one on Gambetta. In 1899 he was elected to the Academy. His duel with Clemenceau in 1893 was a notable event.

Desert Region where, on account of intense cold or insufficient rain, forms of life and little, or no, vegetation can exist. Where the mean annual rainfall is less than 10 inches, desert conditions usually

prevail. Deserts are characterised by intense heat, as in the Sahara, or by great cold, as in the Arctic and Antarctic wastes. Notable deserts are the Sahara and Kalahari in Africa, the Gobi in Asia, the Atacama in S. America, and some in Australia.

Desertion Word meaning to leave surreptitiously and without permission, particularly to the neglect of a duty. Desertion from the army is a military offence punishable by death if the deserter is on active service. Desertion of a wife by a husband is a ground for a judicial separation in English law, and, if accompanied by adultery, for divorce.

Desiccation Process of drying substances by various methods such as by heat, dry air or chemicals having an affinity for water. Desiccation enters into many economic and commercial processes, such as the drying of timbers, fruit, rubber, textiles, etc. Among the chemicals used are quicklime, fused chloride of calcium, and sulphuric acid.

Desmid Group of minute green unicellular conjugate algae occurring in fresh water. They show a great diversity of form, some being canoe-shaped, others rounded, oval or trigonal. Their cells consist of two symmetrical halves usually joined by an isthmus, and the cell wall is marked with delicate patterns like the diatoms.

Desmond Earl of. Irish title borne by the family of Fitzgerald and then by the family of Feilding. It was given in 1329 to Maurice Fitzgerald and was held by the family until the 15th earl died. In 1619 the title was given to Richard Preston, Lord Dingwall, and in 1628 passed to George Feilding. In 1674 George became Earl of Denbigh, and since then the two earldoms have been held together by the Feildings.

Desmoulins Camille. French revolutionist. Born at Guise, March 2, 1760, he became a lawyer and a writer. He is famous as the man, who, on July 12, 1789, just after Necker had been dismissed, urged the crowd, "Aux armes!" and so started the Revolution. He then conducted a weekly paper to further the cause, and had a share in destroying the Girondists. He himself shared Danton's ideas and was guillotined, April 5, 1794.

Despotism Arbitrary government. In ancient Greece a despot, the master of the household, was the ruler of slaves. The title, applied to the absolute monarchs encountered in Western Asia, was given to the emperors at Constantinople. Nowadays despotism describes an arbitrary government, whether benevolent or malevolent, which is uncontrolled by constitutional restrictions.

Destroyer Short name for torpedo boat destroyer, a warship evolved as an answer to the torpedo boat. In the British navy the first was launched in 1893. Their uses were extended, and during the Great War they acted as scouts and screens for the fleets of battleships and battle cruisers. In 1914 the largest British destroyer displaced 965 tons and steamed 32 knots. Larger ones were built and by the end of the war they displaced 1320 tons and steamed 34 knots. In 1932 the British navy had 132 destroyers and a further 23 were building. The largest of these were the A class, the largest of which displaced 1530 tons, steamed 37 knots and

carried four 4.7 in. guns. Destroyers are organised in flotillas of eight, each under a captain or commodore.

Destructor Form of high temperature furnace, designed for the destruction of town or household refuse. It is used especially in thickly populated districts where other means of disposal of waste is not available. In some towns the refuse is used as a fuel for steam production, and in a modern installation there may be, as accessories, electro-magnetic separators for iron, clinker crushers and screens, slab-making mills and presses, and also asphalt-making machinery.

Detaille Jean Baptiste Edouard. French artist. Born in Paris, Oct. 5, 1848, he studied under Meissonier and first exhibited at the Salon in 1867. Three years later he joined the army, finding in his military experiences subjects for his most famous pictures. His paintings include the "Salut aux blessés," 1877, "The Dream," 1888, and portraits of several royal personages. He died Dec. 23, 1912.

Detective Member of a police force not in uniform. His task is to discover information concerning wrongdoers, investigate specific cases, watch individuals or classes of offenders, guard royalties and other prominent personages, and the like.

The Criminal Investigation Department (C.I.D.) at New Scotland Yard, London, is the chief detective force in the country. The Metropolitan police also aids, on request, provincial police forces, which have their own detective organisations. Private detectives are persons engaged unofficially in obtaining information for, or guarding, their employers.

Stories about the detection of crime form a very popular class of fiction, and at least one imaginary detective, Sherlock Holmes, has become immortal. The real founder of this class of fiction was Edgar Allan Poe. For a full study of the detective novel see *Masters of Mystery* by H. Douglas Thomson.

Detonator Percussion cap or detonating powder used to fire a charge of explosive, either in firearms or in mining charges. The explosive compound, or fulminate, best known and used in percussion caps and detonators is fulminate of mercury, a greyish crystalline substance which explodes violently when dry. This fulminate is made by the action of a mixture of nitric and sulphuric acids upon metallic mercury. A fulminate of silver explodes more readily and is used for some purposes.

Detroit City of Michigan, U.S.A. It stands on the western side of the Detroit River, and owes its prosperity partly to its position near Lake Erie. There is a good harbour on the river and the city is well served by railways. Detroit is one of the largest cities in the country. Here are the Ford works, and factories for making machinery of almost every description. There is an enormous trade along the river and with Canada, where many of the workers live. At first a French trading station, Detroit was at one time a British possession. Pop. (1930) 1,563,662.

The **Detroit River** flows from Lake St. Clair into Lake Erie. It is 27 m. long and carries an enormous quantity of shipping. A tunnel beneath it connects the United States and Canada.

Dettingen Village of Bavaria. Situated on the Main. It was the

scene of the Battle of Dettingen (June 27, 1743), between the English, the Austrians and the Hanoverians on the one side and the French on the other. In the end the main body of the allied infantry put the French to flight. In honour of the victory, Handel composed his Dettingen *Te Deum*.

Deucalion In Greek legend, a son of Prometheus, King of Phthia. When Zeus resolved to destroy mankind by a flood, Deucalion entered an ark with his wife, Pyrrha, drifted for nine days and landed on Mount Parnassus. Receiving an oracle which bade them cast behind them the bones of the great mother, they interpreted this to mean stones. Those cast by Deucalion became men, those by Pyrrha women. Their son, Hellen, was the supposed founder of the Hellenic race.

Deuteronomy Fifth book of the Old Testament. The title, "second law," is a Septuagint mistranslation of a Hebrew word meaning copy of the law. It comprises an historical introduction, i.-iv., an exposition of the law, v.-xxvi., the renewal of the Covenant, xxvii.-xxx., the delivery of the law to the Levites, xxxi., the song of Moses, a psalm embodying his blessing and the account of his death, xxxii.-xxxiv. Apparently reaching its present form in Manasse's reign, it inspired the reforms of his grandson, Josiah.

Deutschland German name for their own country, as in the song "Deutschland über Alles."

The *Deutschland* is the name of a German submarine which made a voyage to the United States in 1916 in order to carry cargo. In 1918 she was surrendered to Great Britain.

De Valera Eamon. Irish republican. Born in New York Oct. 11, 1882, his father a Spaniard and his mother Irish, he was educated in Ireland by the Christian Brothers and at the Royal University, and soon became active in the Sinn Féin movement. He was chosen President of the Gaelic League, and in 1918 was elected M.P. for E. Clare, but did not take his seat.

When the Irish republic was proclaimed he was chosen President. He refused to accept the treaty of 1921, and as the leader of the republicans made war upon the Free State. For a year he was in prison and on his release he entered the Dail, where he led the republican party. In the General Election of 1932, Mr. de Valera's party were victorious and he became President. He broke the good relations with Great Britain by wishing to abolish the oath of allegiance and refusing to pay the interest on money borrowed for land purchase.

Developer Chemical substance used to develop the latent image formed by the action of light upon silver salts in a film of sensitive emulsion. The process consists of the reduction to a metallic state of the silver salts which have been acted upon by the light. Examples of developers are pyrogallol acid, amidol and hydroquinone.

Development Commission

Department of the British Government. It was set up in 1909 to assist the economic development of the country. It consists of paid and unpaid commissioners, and its offices are at 6A Dean's Yard, Westminster, S.W. With money granted by Parliament, the Commission assists schemes for benefiting agriculture and fisheries, improving harbours, afforesting, reclaiming and draining land; in fact, any

proposal which cannot be carried out by business men in the ordinary way.

Deventer Town of the Netherlands. It is at the union of the Yssel and the Schipbeek, 66 m. from Amsterdam. Some of the buildings are of great historic interest. Thomas à Kempis and Erasmus were educated at Deventer. At one time it had a famous school, the Athenaeum. There are some manufactures and a trade in agricultural produce. Pop. 33,000.

Devi Hindu goddess. The wife of Siva, she is shown as a woman with a countenance streaming with blood. Round her are snakes and skulls. Sometimes she is shown riding on a tiger. Human sacrifices were offered to placate the goddess.

Devil Evil spirit, pre-eminently the Hebraic chief of the powers of darkness. Apart from the personification of forces hostile to God observable in the Eden story, the doctrine of a personal devil does not emerge clearly in Hebrew thought until after the Exile, when a personality called Satan, sometimes—under Philistine influence—Beelzebub, was conceived; he was in some measure subservient to the Almighty. This conception, passing into Christian philosophy, became very powerful in the Middle Ages. The doctrine of a malignant personality whose temptations must be withstood is officially recognised by Roman Catholicism. Some Protestants accept the same doctrine, although in very varying forms, but others reject it.

Devil's Bridge Beauty spot of Wales. It is in Cardiganshire, 11 m. from Aberystwyth, on the Vale of Rheidol Rly. Here two bridges cross the Mynach, one above the other. The lower one was built in the 11th century by the monks of Strata Florida.

Another *Devil's Bridge* is in Switzerland. This was built across the River Reuss in 1830. It is near Andermatt on the way to Italy, and is nearly 5000 ft. high.

The word *devil* is much used in place names. There are *Devil's Dykes* in Sussex, Norfolk and Cambridgeshire. The one in Sussex, 5 m. from Brighton, is the property of that borough. The *Devil's Jumps* are three hills near Hindhead in Surrey, and there also is the depression called the *Devil's Punchbowl*. Another *Devil's Punchbowl* is near the top of Mangerton, Kerry. A Roman road in Northumberland, about 60 m. long, is called the *Devil's Causeway*.

The term "*devil's advocate*" is used in the Roman Catholic Church for one who is deputed to bring forward objections to a person whom it is proposed to canonise.

The *devil's coach horse* is a name given to a black beetle found in Great Britain. It is also known as the cocktail beetle.

The *Devil's Own* is a name given to the Inns of Court Officers' Training Corps.

Devizes Borough and market town of Wiltshire. It is 86 m. from London by the G.W. Rly., and is also on the Kennet and Avon Canal. It is an agricultural centre, with important markets. Bacon curing and brewing are its industries. Pop. (1931) 6058.

Devlin Joseph. Irish politician. Born in Belfast in 1872, he was educated by the Christian Brothers. In 1902 he was elected M.P. as a nationalist for N. Kilkenny, and from 1906 to 1922 he represented W. Belfast. He was again returned in 1925, and in 1929 was elected for Fermanagh and Tyrone.

From 1921-25 he sat in the Parliament of Northern Ireland.

Devolution (Lat. *devolvere*, to roll down.) Act of handing over something. It is used for a kind of home rule suggested in 1904 as a settlement of the Irish difficulty, namely, the establishment of a parliament or council to manage local affairs under the supreme authority of the Parliament at Westminster. The war of 1667-68 between France and the Netherlands is called the **War of Devolution**.

Devon Earl of. English title held by the family of Courtenay. There was an Earl of Devon soon after 1066, a member of the De Redvers family. About 1335 the title was given to Hugh de Courtenay. More than once his successors forfeited it, but it was again bestowed upon a Courtenay in 1485 and in 1553. In 1556 it fell into abeyance and was not revived until 1831. The earl's seat is Powderham Castle, Exeter.

Devonian System of rocks forming part of the Upper Palaeozoic division and including the Old Red Sandstone. These rocks are found in Devon and Cornwall forming deposits of marine origin, and in South Wales, Herefordshire and Scotland, forming a series of lacustrine or estuarine origin (Old Red Sandstone). The Devonian rocks are divided into Upper, Middle and Lower, and consist of grits, sandstones, slates and limestones with numerous fossils. The Old Red Sandstone in Scotland is rich in fish remains.

Devonport District of Plymouth, at one time a separate borough. It stands on the estuary of the Tamar, called the Hamoaze, and is 22½ m. from London. Devonport is one of the chief stations of the British Navy. At Keyham is the training college for engineer officers. A dockyard was opened here in 1691, and until 1824 the place was called Plymouth Dock. In 1914 it was united with Plymouth (q.v.).

Also town and port of Tasmania. It stands at the mouth of the River Mersey, 80 m. from Lancaster, on the north side of the island. It is connected by railway with Hobart and other towns, and from here steamers go to Melbourne. Pop. 4950.

Devonport Viscount. English merchant and politician. Hudson Ewanke Kearley was born Sept. 1, 1856, and soon entered business life. He built up the business of Kearley and Tonge and became also the head of the International Stores, both firms dealing in provisions. In 1892 he was elected Liberal M.P. for Devonport, and from 1905-09 was Secretary to the Board of Trade. He left office to become Chairman of the Port of London Authority, and in 1916-17 was Food Controller. In 1908 he was made a baronet, in 1910 a baron, and in 1917 a viscount.

Devonshire Western and maritime county of England, the third largest in the country. Lying between the Bristol and the English Channels, it has a long and irregular coastline on both sides and is famous for its beauty. It covers 2610 sq. m. and is separated from Cornwall by the Tamar. Exeter is the county town, but Plymouth is the largest city. Other places are historic seaports, such as Bideford, Brixham, Barnstaple and Dartmouth, and there are picturesque inland towns such as Tiverton, Honiton, and Tavistock, and watering places such as Torquay,

Ilfracombe, Paignton, Dawlish, Sidmouth and Teignmouth.

The county has such famous beauty spots as Clovelly and Lynton. In it is Dartmoor and part of Exmoor. The rivers are the Dart and the Teign, the Exe and Tavy, the Tamar and the Plym. Lundy Island is part of the county. It is an agricultural county, famous for its cream while fishing is an important industry. Devon sends seven members to Parliament and is in the Diocese of Exeter. It is the background of novels by Charles Kingsley, Eden Phillpotts and R. D. Blackmore and is the subject of extensive literature. Pop. (1931) 732,869.

Devonshire gives its name to a famous regiment, formerly the 11th foot. This was raised in 1685 and has a fine record of service including South Africa, 1900, and the Great War. Its depot is at Exeter and its motto is *semper fidelis*.

The **Devonshire** was the nameship of six cruisers built between 1903-05. The other five were *Antrim*, *Argyll*, *Cornwall*, *Hampshire* and *Roxburgh*. In 1929, the earlier ship having been scrapped, a new **Devonshire** was completed. This is a cruiser of the London class and displaces 14,000 tons.

A breed of cattle is known as the Devon. These are famous both for their beef and for their milk. They are deep red in colour and have been bred in Devonshire for at least two centuries.

Devonshire Duke of. English title borne since 1694 by the family of Cavendish. Sir William Cavendish and his wife, Bess of Hardwick, had a son, William, who inherited large estates in Devonshire. In 1616 he was made an earl and, in 1629, his descendant, William, the 1st earl (1610-1707), one of the supporters of William III., was made Duke of Devonshire. William, the 4th duke, was Prime Minister, in name at least, in 1756-57. The wife of the 5th duke, Georgiana, a daughter of Earl Spencer, was the famous and witty lady who was painted by Gainsborough and Reynolds. In 1858 the 6th duke died unmarried, and the title passed to a cousin, until then known as the Earl of Burlington. Another William Cavendish, he became the 7th duke, and was known for his interest in science and education generally.

The duke has large estates in Derbyshire; he also owns valuable land in Eastbourne and around Barrow-in-Furness. His chief seat is Chatsworth; others are Hardwick Hall, Bolton Abbey and Lismore Castle, Waterford. His eldest son is called the Marquess of Hartington.

Devonshire House, Piccadilly, long the London residence of the duke, was sold in 1919 and later pulled down. The site is now occupied by shops and flats. The **Devonshire Club**, at 50 St. James's Street, London, is a social club founded in 1875.

Spencer Compton Cavendish, born July 23, 1833, the eldest son of the 7th duke, was educated at Trinity College, Cambridge. In 1857 he became Liberal M.P. for N. Lancashire, and as the Marquess of Hartington, he remained in the House of Commons until he became the 8th duke in 1891. In 1863 he was made a Lord of the Admiralty and then Under-Secretary for War. In 1866 he became Secretary for War, in the Gladstone ministry of 1868-74 he was Postmaster-General, and from 1871-74 Chief Secretary for Ireland. From 1875-80, Gladstone being in retirement, he led the Liberal party in the Commons. In 1880 he became Secretary for India, and in 1883 Secretary for War.

In 1886 Lord Hartington separated himself from Gladstone on the question of Home Rule, and became one of the Liberal Unionist leaders. He was out of office until 1895, when he joined the Unionist ministry as Lord President of the Council. He held this post until 1903, when he resigned rather than abandon his Free Trade principles. He died without sons March, 24, 1908.

Victor Christian William Cavendish was born May 31, 1868, a son of Lord Edward Cavendish and a grandson of the 7th Duke of Devonshire. He went to Eton and Trinity College, Cambridge, and in 1891 was elected Unionist M.P. for West Derbyshire. In 1900 he joined the Unionist Government, in which he held office as Treasurer of the Household and then Financial Secretary to the Treasury (1903-05). In 1908 he succeeded his uncle in the dukedom and estates. From 1916-21 the Duke was Governor-General of Canada, and in 1922-24 Secretary for the Colonies. He is a K.C., and his public positions include Chancellor of Leeds University and High Steward of Cambridge University.

Dew Term used to denote the deposition of drops of water upon the ground or objects near the ground. It is due to the fall of the night temperature to that point at which saturation of water vapour occurs (dew point) and moisture is extracted from the air. Dew is deposited on a clear night upon objects cooled by radiation and causes a liberation of heat thus checking a further fall in temperature. See Dew Pond.

Dewar **Baron.** Scottish merchant. Thomas Robert Dewar was born, Jan. 6, 1864, and joined his father who was in business as a distiller. The firm, John Dewar and Sons, grew enormously, Thomas becoming the managing director. From 1900-06 he was Unionist M.P. for St. Georges, Tower Hamlets. In 1917 he was made a baronet and in 1919 a peer. Lord Dewar won a reputation as one of the wisest speakers of the day and was a racehorse owner. He died, April 11, 1930, and his title became extinct. His nephew and heir, Capt. J. A. Dewar, is known as an owner of racehorses.

Dewar's brother, **Arthur Dewar** (died 1917), was Solicitor General 1909-10, being then made a law lord, when he took the title of Lord Dewar.

Dewar **Sir James.** Scottish scientist. Born at Kincardine, Sept. 20, 1842, and educated at Edinburgh, he soon began the experimental works which brought him fame, the chief of these being to find methods of liquefying and freezing hydrogen and other gases. His inventions made the vacuum or thermos flask possible and he helped Sir F. Abel to discover cordite. In 1875 Dewar was made Jacksonian professor of experimental philosophy at Cambridge, and in 1877 Fullerian professor at the Royal Institution, London. He was president of the British Association in 1902, was knighted in 1904, and died, March 27, 1923.

Dewberry (*Rubus caesius*) Species of bramble of low growth with fruit resembling that of a blackberry. The drupes of the berry, which are larger and considerably less in number than those of the blackberry, are covered with a bluish bloom, while the flavour is somewhat acid. In America the species *rubus villosus*, is cultivated extensively, as are others.

De Wet **Christian Rudolf.** Boer soldier. Born in the Orange Free State,

Oct. 7, 1854, he became a farmer there. In 1880-1 he served with the Boer army, and from 1885 to 1897 he was a member of the legislature of the Free State. In 1899, when war broke out, he was one of the Boer leaders and in 1900 he was made Commander-in-Chief of the Free State army. His extraordinary skill in the guerrilla warfare of 1900-02 made his name widely known. In 1907 De Wet entered the legislature of the Orange River Colony, and was made minister of agriculture. In 1914 he joined the rebels and met with some success, until taken on Dec. 1, 1914. He suffered a short imprisonment and was fined. He died, Feb. 3, 1922. He wrote an account of the war of 1899-1902.

Dew Pond Name given to small ponds found on the high ground of the chalk downs of southern England. They are supplied with water by condensation of the thick mists and heavy dews frequent upon the downs in the summer. In making a dew pond the excavation is lined with straw, over which puddled clay is placed, and above this a layer of stones. When the pond is properly made the supply of water is perennial and is a great boon to farmers.

Dewsbury County borough of Yorkshire (W.R.). It is 182 m. from London and 8 m. from Leeds, on the L.M.S. and L.N.E. Rlys. It is also served by the Aire and Calder navigation system. Dewsbury is famous as the centre of the manufacture of blankets and shoddy. It sends one member to Parliament. Pop. (1931) 54,303.

Dextrin Colourless tasteless powder obtained by carefully heating starch alone, or with acids, or by the action of diastase upon starch. It is known also as British gum. The commercial product often contains soluble starch and probably unaltered starch and glucose, and varies in its properties according to the mode of preparation. Dextrin is used for many purposes; as a substitute for gum arabic, for the stiffening and finishing of fabrics, for thickening inks and as an adhesive for postage stamps.

Dextrose Alternative name for glucose from the action of the sugar upon polarised light which it turns to the right (dexter). It is found naturally in grapes and other fruits, and is prepared from the starch of maize, potatoes, etc., by boiling with dilute sulphuric acid and is obtained in the form of a syrup or as hard masses. It is used as a sweetening agent in brewing and in confectionery.

Dhak E. Indian tree of the leguminous order (*Butea frondosa*). Abundant throughout India, it has bright orange-red flowers which yield a fugitive yellow dye, and seeds which furnish moodooga oil. It exudes a latex hardening into a brittle, ruby-tinted gum called Bengal kino. The fibre serves for cordage; the wood, leaves and flowers are used in religious ceremonies.

Dhole Wild Indian dog. It chiefly inhabits the jungles of the Deccan, is somewhat larger than the jackal and differs from true dogs in lacking the last lower molars. In colour it is bay with darker mottlings. It hunts in packs of 50 or 60, almost silently, and is capable of running down elephants and occasionally tigers.

Dhow Vessel of about 150 or 200 tons burden, generally with one mast and a lateen sail. It is much used in the Arabian

Sea and along the coast of E. Africa (sometimes as a slave).

Diabase Name somewhat loosely applied to some types of greenstone, and in particular to an altered basic rock. Originally containing plagioclase feldspar and augite, this has become chloritised. The diabases form intrusive masses among other rocks in N. and S. Wales, the Lake District, N. Scotland and Ireland.

Diabetes Disease characterized by habitual excessive discharge of urine. Two forms occur: *diabetes mellitus* or persistent glycosuria, in which the urine contains more or less grape sugar, and *diabetes insipidus* or polyuria, involving no abnormal ingredient. The cause of *diabetes mellitus* is a failure of the insulin-secreting endocrine gland of the pancreas, and treatment is by replacing the deficient insulin by injections of this substance and by careful regulation of the dietary. Starchy foods should be avoided as far as possible.

Diaghileff Serge Paulovich. Russian artist. Born March 19, 1872, he studied art and organised exhibitions of art in St. Petersburg. About 1907 he went to Paris where he produced operas and plays which attracted much attention by the beauty and novelty of their staging, while his ballets were a landmark in the history of stage dancing. Soon he carried his ideas to London, Berlin and New York, and in these and other cities sustained his reputation as a producer of rare and original genius. He died Aug. 19, 1929.

Diagnosis Term denoting the act of distinguishing a disease by its symptoms. The branch of medicine concerned with the observation and interpretation of the signs of disease, called diagnostics, may involve studying the patient's past medical history, noting the temperature and pulse and making laboratory tests.

Diala River of Persia and Iraq. Rising in the Persian highlands it runs south and west, forms part of the boundary between the two countries and, entering Iraq, joins the Tigris just below Bagdad. There was some fighting along the river during the British advance to Bagdad in March, 1917.

Dialect Local variant of a language. The word denotes the collective variations in pronunciation, vocabulary and syntax that are due to geographical conditions. When these variations become unintelligible to those in related communities the dialect becomes a language. Thus the primitive Aryan speech passed through dialectic variations into the separate languages of Greek, Sanskrit, Latin and others; Greece has its Ionic, Doric, Aeolic, Attic and other dialects; the peasant dialect of Tuscany became the literary language of Italy.

In England there are many dialects. Dictionaries of these have been published and societies exist to keep the dialects alive.

Dialysis Method (invented by Thomas Graham) of separation of colloid and crystalloid substances from a solution. First elaborated in 1861, it is found that colloidal substances, such as gum and gelatin, will not pass through a parchment membrane, while crystalloids readily diffuse through. The apparatus used consists of a glass vessel (dialyser) with a parchment bottom, containing a solution of both types of substances. The dialyser is suspended in a vessel of water, and the crystalloids slowly diffuse into the water leaving the colloids in the upper vessel.

Diameter In geometry a straight line passing through the centre of a circle and terminated both ways by the circumference. Mathematically its length is the length of the circumference divided by $3\frac{1}{2}$, this being the nearest fraction to the exact decimal.

Diamond Crystalline form of carbon. It is found in nature as water-worn pebbles, or grains, in river gravels and other alluvial deposits, also in conglomerates and sandstones in S. Africa, India, Brazil, Borneo and elsewhere. The crystals belong to the cubic system and occur in octahedra and dodecahedra often with curved faces. They are usually white, but yellow, red and other colours also occur. The diamond is one of the most popular of gem stones, owing chiefly to its lustre. It is the hardest substance known and therefore is used as an abrasive.

More than half the world's supply is produced in S. Africa, but the Borneo and Australian diamonds are preferred for abrasive purposes. The S. African output in 1927 was valued at over £12,000,000. Two of the finest diamonds ever found are the Koh-i-Nor and the Cullinan, both among the British crown jewels.

Diamond Sculls One of the chief races at Henley. It was first rowed in 1844 and is confined to amateurs. The course is 1 m. 550 yds. long. It is for single scullers.

Diana Roman divinity identified with the Greek Artemis. She appears as the goddess of light, as mistress of the groves and as Hecate. She is represented as a huntress bearing a torch, and was regarded as possessing the virtue of chastity. Probably on this account she was worshipped as the goddess of women and childbirth. Many temples were erected in her honour, the most famous being the one at Ephesus.

Dianthus Genus of herbs of the carnation-pink order. They are native to the N. temperate regions and to S. Africa. Of 70 species several grow wild in Britain, notably the Maiden, Deptford and Cheddar pinks. The Mediterranean clove pink originated all the garden varieties of carnation; from the pheasant's eye come many garden pinks, the bearded pink and the sweet williams.

Diapason Musical term used in acoustics. Diapason normal signifies the pitch standard of 435 vibrations per second for the production of middle A. Fixed in 1859 by the French Academy, this is known as the French or International pitch.

Diapason signifies also a series of organ stops of eight and sixteen feet. It is poetically synonymous with the range of compass of a voice or instrument.

Diaper Textile fabric, usually of linen or cotton, with simple geometrical or conventional woven pattern uniformly repeated.

Diaper patterns, geometrical and floral, mostly derived from Byzantine textiles, are also seen on mural surfaces, sculptured in low relief, painted, or gilded; and in backgrounds and fillings of illuminated manuscripts, on stained glass, tiles, incised brasses and heraldic compositions.

Diaphragm In men and some animals, a dome-shaped muscular membrane separating the chest from the abdominal cavity. Attached continuously to the chest's lower margin, it comprises muscular fibres surrounding a trefoil-shaped tendon. It is pierced by the gullet, aorta, inferior vena

cava, certain nerves and small vessels. It is lined beneath by the peritoneum enclosing the abdominal organs, and above by membranes enclosing heart and lungs. It contracts and relaxes with breathing, and plays the chief part in respiratory motion.

Diary Daily record of events or transactions. The words diary and journal have the same ultimate origin. When the diarist notes all matters within his personal experience and observation, or those communicated by others, his record sometimes makes valuable contributions to historical or scientific knowledge. Some of the greatest, as Pepys's and Wesley's, were kept in cipher, with no thought of ultimate publication. Some, as Evelyn's, bear traces of subsequent elaboration. Greville's and Creveley's are diaries of great historic interest.

Diaz Armando. Italian marshal. Born in Naples, Dec. 5, 1861, he entered the army in 1881 and rose to be a general. Commander of an army corps in 1916, in Nov., 1917, after Caporetto, he was made Commander-in-Chief, and in 1921 received a dukedom. He died Feb. 29, 1928.

Diaz José de la Cruz Porfirio. Mexican President. Born at Oaxaca, Sept. 15, 1830, he became a lawyer. In 1854 he was a leader in an insurrection, and his military talents brought him to the front. He led the Mexican Army in the struggle against the Emperor Maximilian and in 1877 was elected President. He was re-elected every succeeding four years until 1910. Under his rule order was restored and Mexico enjoyed considerable prosperity, although he had many enemies. In 1911 a rising forced him to resign and he left the country to die in Paris, July 2, 1917.

Dibdin Charles. English song writer. Born in Southampton, March 4, 1715 he settled in London, and in 1762 his operetta *The Shepherd's Artifice* was produced at Covent Garden. Of his many songs "Tom Bowling" and "Poor Jack" are the best known. He also wrote novels and an *Autobiography*. Dibdin died July 25, 1814.

Dibon City of Palestine. It lay to the east of the Dead Sea and was one of the cities of the Amorites. Here in 1868 the Moabite Stone, now in the British Museum, was discovered. The village called Dhiban stands on the site.

Dicey Albert Venn. English jurist. A son of T. E. Dicey, he was born in 1835 and educated at Balliol College, Oxford. He became a barrister, and in 1882 Vinerian Professor of English Law at Oxford. He resigned in 1909, and died April 7, 1922.

Dicey's most famous work is his *Law of the Constitution*, 1885, whilst his *Case Against Home Rule* helped to defeat Gladstone's bill. His *Essay on the Privy Council* is a valuable text book.

Dicey's brother **Edward** (1832-1911), a Cambridge man, was also a forceful and able writer. From 1870-89 he was editor of the *Observer*. He died July 7, 1911.

Dick William Reid. Scottish sculptor. Born in Glasgow in 1879, he was educated there and in London, and soon made a name for his figures in stone and bronze. His work may be seen in the Kitchener Memorial Chapel in S. Paul's Cathedral, London, on the Menin Gate at Ypres and elsewhere. "Femina Victrix" is in the public galleries of Sydney. Dick was elected A.R.A. in 1921 and R.A. in 1929.

Dickens Charles. English novelist. Born at Landport, Portsea, Feb. 7, 1812, he was the son of a clerk in the navy, and his full name was Charles John Huffam Dickens. In 1814 the family moved to London. The father fell on evil days and was imprisoned for debt, so Charles worked as a child in a factory, before obtaining a little schooling at Camden Town. Later he entered a solicitor's office, learned shorthand and became a fairly successful reporter. In 1836 he married Catherine Hogarth, from whom he separated in 1858. They had a family of seven sons and three daughters. One son, **Henry Fielding Dickens**, became a successful barrister and a K.C.

In 1833 Dickens began to write fiction and, calling himself "Boz," published some sketches of London life in the *Evening Chronicle*. In 1836 the first part of *The Pickwick Papers* appeared in serial form. This was a great success and his author's fame was assured. He left his reporting work and became editor of *Bentley's Miscellany* in 1837. In this *Oliver Twist* appeared, and then came *Nicholas Nickleby*, *The Old Curiosity Shop* and *Barnaby Rudge*. After a visit to America he wrote *Martin Chuzzlewit* and then followed *A Christmas Carol*, and others of *The Christmas Tales*. In 1846 he was for three weeks the first editor of the *Daily News*.

For the next 17 years Dickens was busy writing and giving public readings from his works in both Britain and America, these being very popular in both countries. *Dombey and Son* appeared in 1848, and *David Copperfield* in 1850. *A Tale of Two Cities* was published first in *All the Year Round*, as was *Great Expectations*. *Our Mutual Friend* appeared in 1864. In 1865 Dickens broke down in health, but he continued his readings and began to write *The Mystery of Edwin Drood*. Before it was finished he died at Gad's Hill, near Rochester, a house he had bought in 1850, on Jan. 9, 1870.

In one respect Dickens is much the greatest of English novelists. No one has approached him in the creation of characters whose names are household words. Pickwick, Sam Weller, Micawber, Stiggins, Little Nell, Bill Sykes and Mark Tapley are a few out of many. He possessed, too, remarkable gifts of humour and pathos and unrivalled powers of description.

The memory of Dickens is kept alive by the **Dickens Fellowship**, which has branches all over the country. Its headquarters are at 48 Doughty St., London, W.C.1, where a Dickens Museum has been opened. There are several lives of Dickens including a critical one, *This Side Idyllic*, by C. E. Bechofer Roberts, 1928.

Dicksee Sir Francis Bernard. English artist. He was born in London, Nov. 27, 1853, and first exhibited at the Royal Academy in 1876. He was elected R.A. in 1891 and chosen president in 1924. He was one of the leaders of the older academic school, expressing art in sentimental or poetic form combined with realistic though somewhat mechanical technique. His numerous paintings include "Harmony" and "The Two Crowns" in the Tate Gallery, London, and "Reverie," in the Liverpool Art Gallery. In 1924 he was knighted, and died Oct. 17, 1928.

Dictaphone Modification of the phonograph, used to save time in the dictation of letters, etc. The letter or message is spoken into the mouthpiece of an instrument having a revolving wax cylinder upon which a record is made. The cylinder is then taken by the typist and placed in a transcribing machine and, by means of a pair

of receivers placed over the ears, the message can be heard and typed.

Dictator Originally the name of an office under the Roman Republic. Its holder was a magistrate appointed in times of great difficulty and invested with wide powers. The office was abolished by Antony in the year 44 B.C. The name is now generally applied to any official exercising supreme power in any country or office.

The S. American States have had dictators at various times and after the Great War they arose in several European countries. Mussolini in Italy is perhaps the most prominent example of a modern dictator.

Dictionary Primarily a book giving in alphabetical order the meanings of words and their correct spellings. More elaborate dictionaries give full and detailed etymologies with quotations showing the use of the word in question. Of English dictionaries one of the first was compiled by Samuel Johnson; the most elaborate is the *New English Dictionary*, edited by J. A. H. Murray. There were, however, dictionaries compiled by Jewish and Arabic scholars in the 9th century or earlier.

The word is used sometimes for a book which gives the English meanings of the words in a foreign language, e.g., Greek or French, but these are more correctly called *lexicons*. Books containing biographies, quotations, etc., arranged in alphabetical order are also called dictionaries.

Didcot Town of Berkshire. It is 7 m. from Abingdon and is an important junction on the G.W. Ry. which has works here. Pop. 2160.

Diderot Denis. French writer. Born at Langres, Oct. 5, 1713, he was educated by the Jesuits, but refused to accept their teaching. The great work of his life was the preparation of the *Encyclopédie*, which appeared in 17 volumes between 1751 and 1765. Diderot also wrote novels and plays, some volumes of criticism, artistic and literary, and a book on acting. He died July 30, 1784.

Dido Princess of Tyre. Her brother Pygmalion having killed her husband Sichaous, she fled to Africa and founded Carthage. To escape wedding Iarbus the Gaetulian, she erected a pyre and stabbed herself upon it. Virgil makes Dido contemporary with Aeneas, at whose departure she kills herself for love of him. Her real name was Elissa, but she became confused with Dido, a name of Astarte, the moon goddess.

Didymium One of the very rare metallic elements. Its atomic weight is 141 and its symbol D. It occurs in certain minerals, such as monazite and parisite, along with other rare metals, cerium, thorium and lanthanum. The presence of didymium in a mineral is recognised by a simple inspection by transmitted light with the spectroscope, as the element shows two broad black bands enclosing a bright space, one in the yellow part of the spectrum and the other in the green section.

Die Term having the primary significance of a small cube used for gaming, dice being the plural form. It is applied also in architecture to the square base of a column and in engineering to various stamping contrivances and for tools used in impressing coins. Dies for power presses in sheet metal work are of two kinds; cutting dies which cut out or punch flat blanks, and shaping dies which shape the

form of the blank. Dies are used also for drawing fine wire.

Dieppe Seaport and pleasure resort of Northern France. It stands on the English Channel at the mouth of the little River Arques, 105 m. from Paris and 38 from Rouen. There is an old town with a castle. The port has a good harbour and a considerable export of produce. There is a large fish market. Pop. 24,400.

Diesel Engine Type of internal combustion engine. In it air is drawn into the cylinder and compressed to about 500 to 600 lb. per square inch with the result that the air becomes greatly heated. The heat of the air charge then ignites the liquid fuel which has been sprayed by means of a powerful pump through a jet into the cylinder. The result of the ignition is a detonation which causes a downward movement of the piston. It was invented by Rudolf Diesel (1858-1913).

Diet Food and drink. Nutrient substances absorbed into the body are utilised in forming tissue, repairing waste and producing energy. Essential constituents are flesh-forming proteins, heat-producing fats and carbohydrates, mineral matters, minute quantities of vitamins, and water.

For studying dietetic problems food's potential energy is measured by the heat evolved in complete oxidation, that needed to raise the temperature of a kilogram of water 1°C. being called a calorie. Proteins 34 oz., carbohydrates 18 oz., fat 2 oz. yields 5800 calories.

Diet (Lat. *dies*, a day). Name used for the representative body of the Holy Roman Empire, and of similar bodies elsewhere. It was so called because a particular day was fixed for the meeting; the Germans retain this use of the word day (*tag*) in Reichstag, Landtag, etc.

The diet, or Reichstag, of the Holy Roman Empire consisted of three colleges or houses (1) the electors; (2) the princes; and (3) the free cities. Never very powerful, its power grew less and less, and after 1618 little was heard of it. The word was also used for the parliaments of the Germanic Federation, and other states and provinces of Central Europe, e.g., Poland.

Diffraction Phenomenon observed during the study of light. Monochromatic rays from a distant point falling upon a narrow slit produce a pattern of light and shadow bands, due to the interference of waves travelling slightly different paths.

A **Diffraction Grating**, or glass plate ruled with very fine lines, produces similarly a series of spectra of white or coloured light of uniform distribution, and is much used, therefore, in spectroscopy.

Diffusion Term used in physics for the phenomenon of the gradual mixing of two different substances which are in contact. Diffusion in liquid takes place more rapidly at high temperatures and under agitation.

Digestion Process of preparing food after entering the mouth for absorption into the blood vessels. It comprises three stages, salivary, gastric and intestinal. Food mixes during chewing with a ferment contained in the alkaline saliva which converts the starch into forms of sugar. This activity continues in the stomach, gradually superseded by that of the gastric juice which, in the presence of free hydrochloric acid, operates through several active principles. When gastric digestion is completed the semi-fluid chyme

passes into the bowels, where intestinal activities elaborate a creamy fluid chyle, whence the lymphatics extract the emulsified fats. Sugar, salts and soluble proteins reach the small blood vessels direct.

Digitalis Genus of plants belonging to the natural order *scrophulariaceae*. They are natives of Britain, Europe, N. Africa and Asia. The foxglove, *D. purpurea*, is a well-known species. Its leaves yield the poisonous alkaloid digitalin, as well as several other poisonous glucosides. The leaves are gathered from wild plants of the second year's growth and carefully dried. Both the leaves themselves and various preparations are used in certain forms of heart disease, and dropsy.

Dijon City of France. It is picturesquely placed amid the mountains in the south-east of the country, 210 m. from Paris, and is at the junction of the rivers Ouche and Saône. There is a university founded in 1722 and several colleges. Dijon was at one time the capital of the Duchy of Burgundy. To-day it has some manufactures and a trade in wine and agricultural produce. Pop. 83,800.

Dilapidation Word meaning a falling into decay. Legally, in the plural form, dilapidations, it means the disrepair of property for which tenants, who bind themselves to keep buildings in good repair and to hand them back in that condition to the owner, are liable. The holders of benefices in the Church of England are often called upon to find money for dilapidations when they leave a rectory or vicarage.

Dilemma (Gr. *di*, twofold; *lemma*, proposition). Argument in which an opponent is caught between two difficulties; when he has two alternatives to choose from, each of which would be fatal to his cause. A modern example of a dilemma is the argument used by opponents against a tariff. If it succeeds in keeping out foreign goods it will produce no revenue; if it fails to do so it will not protect the home market.

Diligence Form of stage coach. It was popular in France until superseded by steam trains, and lingered throughout the 19th century in Switzerland and other mountain regions.

Dilke Sir Charles Wentworth. English politician. Born in London Sept. 4, 1813, he was the son of Sir C. W. Dilke, Bart., and the grandson of Charles Wentworth Dilke (1789-1864) who owned and edited the *Athenaeum*. He was educated at Trinity Hall, Cambridge, and in 1869 succeeded to the baronetcy created in 1862 and the ownership of the *Athenaeum*. Elected M.P. for Chelsea in 1868, he was made Under-Secretary for Foreign Affairs in 1880, and in 1882 President of the Local Government Board. Dilke married Emilia Frances, widow of Mark Pattison, and died childless Jan. 26, 1911. His books include *Problems of Greater Britain*.

Dill (*anethum graveolens*). Annual umbelliferous plant found in Asia and S. Europe. It has small yellow flowers and flat brown fruits or seeds. From these is prepared dill water, a carminative used medicinally for infants, and the leaves are also used for flavouring. It is identical with the anise mentioned in the Scriptures.

Dillon John. Irish politician. A son of John Dillon, M.P., he was born in 1851 and educated for the medical profession in Dublin. In 1880 he entered Parliament, became

one of the most active of the nationalists, and was more than once in prison. In 1896, after the split in the nationalist party, he was elected leader of the section opposed to Parnell, and in 1918, on the death of J. E. Redmond, he was chosen as his successor in the leadership of the united party. The rise of Sinn Féin, however, left his party almost powerless. Dillon died Aug. 4, 1927.

Dillon's brother, **Emile Joseph Dillon**, won a reputation as a foreign correspondent, especially for the *Daily Telegraph*.

Dilution Term used for the process of lowering the strength of a liquid by mixing it with water or other fluids. In medicine distilled water is used for reducing concentrated extracts to the required strength for dosage and in some extracts, such as nuxvomica and strophanthus, milk sugar is the diluting agent. Dilution plays an important part in the preparation of homeopathic medicines which are given in infinitesimal doses.

Dime Silver coin current in the United States. The tenth part of a dollar, it is worth about 5d. in English money.

Dimorphism Term applied to the phenomenon where two different forms occur in 2 species of animal. An example is the case of certain insects where winged and wingless individuals occur in the same species. In other types the male and female may differ strongly in colour, size, etc. (sexual dimorphism).

Dinan Town of Brittany. It stands on both sides of the River Rance, 15 m. from St. Malo. The chief buildings are the Church of S. Sauveur, once a cathedral, and the castle. There is a small harbour and a little shipping trade. Pop. 10,100.

Dinant Town of Belgium. It stands on both sides of the Meuse, 17 m. from Namur. At one time Dinant was a great commercial city with 60,000 people protected by walls and a castle. The Germans captured the town and burned some of the houses in Aug., 1914. Pop. 6900.

Dinar Standard monetary unit of Yugoslavia. It has a nominal value of about 94d. in English money. Coins of 1 and 2 dinars, and notes of 5, 10, 100 and 1000 dinars are current.

Dinard Watering place of Brittany. It stands at the mouth of the Rance, opposite St. Malo. There is a casino and other attractions for visitors. Pop. 7000.

Dindings District of the Straits Settlements. It consists of a piece of land on the coast together with Pangkor and other islands. It covers about 200 sq. m. Lumut is the capital. Pop. 18,331.

Dingle Seaport and market town of Kerry, Irish Free State. It is on the railway, 30 m. from Tralee, and is a fishing centre. There is a harbour. Pop. 2000.

Dingle Bay is an arm of the Atlantic. It is 21 m. long and at its entrance are Bray and Dunmore Heads.

Another Dingle is a part of Liverpool. In it is Dingle Point, a prominent mark on the Mersey.

Dingo Native Australian dog or warrigal. It is stoutly built and sandy-coloured, short-legged, with bushy tail. Notwithstanding fossil remains of pleistocene age, it is commonly regarded as having been introduced by man, and related to the S. Asian

pariah dogs. It is nowadays entirely wild and very destructive to flocks, being systematically destroyed under government encouragement.

Dingwall Burgh of Scotland; the county town of Ross and Cromarty. It stands on the Cromarty Firth, 18 m. from Inverness, on the L.N.E. Rly. Pop. (1931) 2554.

Dinkelsbühl Town of Bavaria, famed for its picturesque appearance. It was founded in 928, was long a free city, and in 1802 became part of Bavaria. In 1928 the town celebrated its thousandth anniversary. Pop. 5500.

Dinnington Village of Yorkshire (W.R.). It is on the S. Yorkshire coal field 14 m. from Doncaster, on the L.N.E. Rly. Pop. 4900.

There are towns of the same name in Northumberland and Somerset.

Dinosaur Order of extinct four-footed reptiles of the mesozoic era. Mostly small-brained, they dominated by bulk; some laid eggs, while some produced living young. They form four sub-orders: (1) Lizard-footed herbivores, as the *atlatosaurus*, 100 ft., *diplodocus*, 80 ft., *cetiosaur* and *brontosaur*, 60 ft.; (2) Armoured-plated herbivores, as the *stegosaur*, 25 ft., and three-horned *triceratops*, with 6 ft. head; (3) Bird-footed herbivores, as the *iguanodon*, 30 ft.; (4) Beast-footed carnivores, as the *megalosaur* and *dryptosaur*, 20 ft., and the *tyrannosaur*, 40 ft.

Dinotherium Genus of extinct proboscidean mammals of great size, preceding the mastodons and the elephants. Perhaps originating in Miocene N. Africa, fossil remains of several species are found in Miocene and Pliocene rocks in France, Germany, Greece and N. India. Lacking upper incisor and canine teeth, their lower jaw, sharply bent downward, bore two massive, tusk-like incisors. Apparently they were more or less aquatic, and the skull indicates a length of 18 ft.

Diocese District under the authority of a bishop. The whole of Great Britain is divided into dioceses and there are dioceses also in the British Dominions and in other lands where the Anglican Church works. The Roman Catholic Church is also divided into dioceses. A group of dioceses forms a province which is usually under an archbishop.

There are now 43 dioceses in England, 30 in the province of Canterbury and 13 in the province of York. Wales has six dioceses. Each diocese has a cathedral and usually takes its name from the cathedral city. In one or two cases a diocese has a double name, e.g., St. Edmundsbury and Ipswich.

Diocletian Roman emperor. Born at Dioclea in Dalmatia in A.D. 215, his full name was Gaius Aurelius Valerius Diocletianus. Said to have been the son of a slave, he became a soldier, held various commands, and in 281 was proclaimed emperor. He divided the empire with his colleague, Maximilian, and later, in 292, with Galerius and Constantine Chlorus as well. Nicomedia was his capital.

Diocletian's reign was marked by a strong tendency towards absolute rule. He subjected the Christians to much persecution by an edict of 303. In 305 he abdicated and died at Spalatro in 313.

Diogenes Greek cynic philosopher. Born at Sinope, according to tradition, he early emigrated to Athens, became

a pupil of Antisthenes, the founder of the Cynics, and lived in a tub. Taken prisoner by pirates and sold as a slave, he was bought by a wealthy Corinthian, Xenades, who gave him his freedom. Little is really known of his life and doctrines. The countless anecdotes that are told of him by ancient authors cannot lay claim to authenticity. Under his name we have some spurious letters. He lived from 412 to 323 B.C.

Diomedes Greek legendary hero. King of Argos, the bravest of the heroes next to Achilles, and the favourite of Pallas Athene, he was present at the siege of Troy. Fighting against the gods who sided with the Trojans he wounded Arès and Aphroditè. His cult, starting from Argos, spread through all the Greek lands.

Dionysia Greek festivals in honour of Dionysus. These consisted of the lesser or rural Dionysia, celebrated in the country, and the greater or city Dionysia, celebrated at Athens. On the first day of the latter there was a grand procession to the altar of the god, a feast, and a choral dance; on the second day dithyrambs were sung; and on the last three, contests of tragedy and comedy were held in the great theatre of Dionysus.

Dionysius Name of two rulers of Syracuse, known as tyrants. **Dionysius the Elder** was born at Syracuse in 430 B.C. He won renown in the campaign against Carthage and was made commander of the army in 405. Soon he was proclaimed king, ruling over a good part of Sicily, as well as the city of Syracuse. His rule was oppressive and conspiracies were formed against him, but he kept his state and position until his death in 367. Dionysius erected beautiful buildings in Syracuse, won a prize with a play and was visited by Plato.

His successor, **Dionysius the Younger**, passed most of his reign in warfare with a rival, Dion. He was driven away in 356, but returned ten years later. In 313 he again left Sicily and passed his remaining days as a teacher in Corinth.

Two other persons of this name are known. **Dionysius the Areopagite** was one of St. Paul's converts. He was evidently an Athenian (Acts. xvii.). **Dionysius of Halicarnassus** was a Greek who passed much of his life in Rome. He wrote, in Latin, a book on the history of the Roman people.

Dionysus Greek name for the god known usually as Bacchus (q.v.).

Diopside Somewhat rare mineral allied to augite and belonging to the monoclinic pyroxene group. It consists of a silicate of calcium and magnesium, and occurs as green or colourless crystals in veins in serpentine, granular limestones and garnet rock in Sweden, Italy, the United States and other localities.

Diopside Rare mineral. It consists of silicate of copper and occurs as green transparent crystals which resemble those of the emerald. It was first found lining cavities in the limestone at Aityn-Tübeh in the Khirgiz Steppes and later in Chile and the French Congo. In its chemical composition it is allied to the commoner copper ore, chrysocolla. It sometimes serves as a gemstone.

Diphthong (Gr. *di*, double; *phthongos*, sound). Union of two vowel sounds which follow each other so closely that when pronounced they form only one syllable.

Thus, in the word *out*, *ou* is really a compound of the sound of a heard in *father* and the sound of *u* heard in *put*.

Diplodocus Genus of extinct land reptiles. They lived in Wyoming and Colorado in Jurassic times. They had smooth skins, slender necks and long tails, with diminutive heads and tiny brains. Walking on all fours, with nostrils overhead for breathing, they browsed on succulent aquatic weeds, submerged in wide estuarine shallows at the foot of the Rocky Mts. Their length ranged from 50 to 85 ft.

Diphtheria Infectious disease. A germ or bacillus sets up an inflammation in the throat or adjacent areas where a fibrinous membrane is formed. The temperature rises and is accompanied by pains, headaches and general lassitude. Sometimes the glands are swollen. Diphtheria chiefly attacks young children, but others are by no means immune. It is highly infectious. Many cases are due to drinking impure water, and it is often conveyed in milk. It can also be conveyed by carriers, persons who are themselves free from it, but who can infect others. In its severe form diphtheria is very dangerous; breathing is impeded and the closing of the air passages brings on death.

Formerly almost one in two cases was fatal, but the use of anti-toxin has greatly reduced the mortality. In Great Britain cases of diphtheria must be notified to the medical officer of health. The word is a Greek one meaning leather, because the membrane formed in the throat resembles leather.

Diploma Mark of proficiency, usually in a branch of learning. Examining bodies who cannot give degrees give diplomas to those who have fulfilled certain tests. They are also given to dispensers, opticians and traders of other kinds to show that a certain degree of skill has been attained. Strictly speaking the diploma is the document on which the qualifications are set out.

The Diploma Gallery is at Burlington House, London. It contains the works sent to the Academy by those who have been elected R.A. The rule is that each R.A. presents a work to this gallery.

Diplomacy Art of negotiation, especially between countries. To-day each country possesses a diplomatic service whose members called diplomatists carry on negotiations with foreign countries. Some of these, ambassadors, ministers, envoys, etc., go abroad and live in a foreign capital to keep in close touch with its rulers. Their business is to watch over the interests of their country and to send regular reports upon all that concerns it. The position is a highly confidential one.

The service originated when emperors and kings sent men on business to foreign countries. About the end of the Middle Ages the practice began of sending a representative to reside in a foreign land. The Tudor sovereigns had a number of such diplomatists and much of our knowledge of foreign affairs comes from studying their reports.

In the United Kingdom the diplomatic service is part of the foreign office staff. Most of the ambassadors and ministers are drawn from members of the service, but occasionally an outsider of eminence is appointed, as when Lord Derby and then Lord Crewe were sent as ambassadors to Paris. Diplomatists in a foreign capital enjoy special privileges. They cannot be arrested and their residences are free

from rates and taxes. All the diplomatists in a capital form the **diplomatic corps** which takes precedence on State occasions. Its etiquette is very strict.

Diplomatics Critical study of historical and other documents. It comes from the word *diploma* and is only concerned to find whether or not the documents are genuine. The study arose at a time when many forgeries of charters, etc., were in existence. There is a reader in diplomatics at Oxford.

Dipper Semi-aquatic songster allied to the thrush (*cinclus aquaticus*), also called the water ouzel. Brownish, white-breasted, with short rounded wings, it haunts mountain streams, into which it plunges noiselessly. It clings to the bed of the river and uses its wings to help its progress under the water. The bird lays five eggs at a time.

Dipsomania Morbid craving for alcoholic stimulants. It is the result of mental instability, assisted in many cases by an hereditary tendency to drink. Dipsomania is treated in homes for inebriates and the law allows them to be put under restraint.

Diptera Order of insects. Characterised by two membranous wings, usually transparent, not folded at rest, the posterior pair present in other insect orders is reduced to drum-stick balancers or halteres. With short antennae and two large compound eyes, the mouth parts form a proboscis for piercing and sucking. Upwards of 40,000 species have been named, but far larger numbers remain unnamed. Nearly 3000 are recognised as British; they include crane flies, mosquitos, house flies, tsetses and bot flies. Many species walk upside down by means of foot suckers.

Diptych Form of writing tablet used by the Romans. It consists of two wooden or ivory leaves which fold over like a book. In time it became customary to present consuls with a diptych carved on the outside in bas-relief. The early Christian diptych is distinguished by the principal illustration being on the inside.

Dirce In Greek legend the wife of the King of Thebes, Lycus. She is known for her harsh treatment of Antiope, a former wife of the king. To avenge their mother, Antiope's sons, Amphion and Zethus, killed Lycus and tied Dirce to a wild bull which dragged her about till she died.

Directoire Form of architecture and furniture developed during the French Directory, which was in power 1795-99. It marked a gradual abandonment of the restrained classical grace in vogue under Louis XVI., passing into an enthusiasm for the heavier Roman motives. Its influence upon contemporary taste in England was slight.

Director One holding a directing or responsible position. Under the company law of England every limited liability company must have a board of directors who are responsible for its affairs. They are elected by the shareholders. One of them is chosen to act as chairman, and one or more are called managing directors and give their whole time to the business. The directors are responsible for the statements made in a prospectus and can be prosecuted for neglect in the supervision of the company's affairs. A board of directors must keep minutes of its

proceedings and issue reports to the shareholders.

The word is also used for certain high officials in the civil service, especially the War Office and the Admiralty, and for those responsible for the control of education in counties and county boroughs. Another director is the director of public prosecutions.

Directory Committee of five men who governed France from Oct. 1795, to 1799. The convention framed a constitution and entrusted the executive power to the Directoire. Its first members were Barras, Carnot, L  peaux, Letourneau and Rewbel. Under the Directory Napoleon conducted campaigns in Italy, Egypt and Germany. French influence increased in Italy and Switzerland, and a treaty with Austria was concluded. Napoleon ended the Directory Nov. 9, 1799, and made himself first consul.

Dirge Funeral song or hymn. The word is a corruption of the opening word in the Roman Catholic office for the dead, *Dirige, Domine*, etc.

Dirigible Term applied to navigable balloons and non-rigid airships. The earliest type was a slightly elongated balloon propelled by oars or propellers and worked by hand power. The modern non-rigid type, the result of many experiments, is spindle-shaped, giving less resistance than the globular form, and is directed by horizontal and vertical planes.

Dirk Highland dagger or poignard. It has a short, sharp-pointed blade from 15 to 20 in. in length, and a handle of wood or horn, or of brass with ornamental mountings. In the British Navy it was worn as a side arm by midshipmen and cadets.

Dirt Track Course of dirt or cinders on which motor cycles race. Dirt track racing originated in Australia and was brought to England in 1928. Matches take place regularly between teams of six, much on the principle of the leagues in association football. There are tracks at Lea Bridge, Crystal Palace, Stamford Bridge, Wimbledon and elsewhere in the London area; also in Manchester, Birmingham, Liverpool and other large cities.

Discharge In law, the bringing to an end of a contract, e.g., by performance, breach or mutual agreement. In bankruptcy, discharge means the release of a bankrupt from his liabilities, which may be granted, unconditionally or subject to a condition, e.g., after the lapse of a period of time, on the payment of a specified sum as dividend to the creditors.

The term is also used when a soldier or sailor leaves the army or navy. He is discharged at the end of the time for which he enlisted, but he can buy his discharge at an earlier date.

Disco Ball game introduced into London in 1928. It resembles badminton, but the play is faster. Underhand service is compulsory and modern racquets are used. The court is 40 ft. long and 16 ft. wide, divided by a net, 4 ft. high. The service lines are marked between two posts 14 ft. back from the net. On each post is a disc, 20 in. across. If the ball falls to clear the net or goes out of the court one point is lost, but if it hits a disc five points are gained. Games are for 15 points, and a set is the best out of five games.

Disco Island off the west coast of Greenland, of which it forms part. It covers 3000 sq. m. and on it are coal mines,

and stone quarries. Godhavn is the chief settlement.

Discobolus Copy in the Vatican of a famous statue by Myron. There is also a marble copy in the British Museum.

Discount Percentage allowance from the price of an article or the amount of a debt. Cash discount is allowed by traders for prompt payment, while trade discount is an allowance made by wholesalers from the retail prices of articles bought in large quantities.

Banker's Discount is a commission charged for discounting, i.e., cashing a bill of exchange. The firms engaged in this business in London form what is called the discount market.

Discovery Name of several English ships. One was commanded by William Baffin when he went to the Arctic Ocean early in the 17th century. Captain Cook and George Vancouver sailed in ships of this name and there were others. In 1901 Capt. Lt. K. Scott went to the Antarctic in a new *Discovery*, and this vessel, having been refitted, was used by Sir D. Mawson in 1929.

Discus Round or oval plane of stone or wood or metal used in athletic contests. Throwing the discus was one of the competitions in the games of ancient Greece. It has been revived in modern times and is an event at many athletic meetings. The discus weighs 4 lbs. The world's record of 157 ft. 11 in. was made at San Francisco in 1925. In 1930 a British record (166 ft. 8 in.) was made at Brighton by A. R. Edwards.

Disease Definite ailment or complaint. It may be physical or mental, acute or chronic, curable or incurable, affect any part of the organism, and directly or indirectly conduce to death. Its study is called pathology. Physicians and surgeons are either general practitioners or specialists in limited fields of practice, such as diseases of the eye or the lungs. Diseases may be constitutional, localised, congenital, infectious, endemic, or epidemic. Some infectious diseases must be notified to the local medical officer of health.

For the study of tropical diseases there are institutes in London, Liverpool, Hamburg and elsewhere.

Disendowment Sequestration by the State of property belonging to the Church. It usually accompanies disestablishment. By Acts of Parliament passed in 1869 and 1914, the Irish and Welsh Churches were disendowed, the clergy receiving life interests in their benefices. Proposals have been put forward for disendowing the Church of England, but its advocates maintain that property definitely left to the Church within recent years should not be appropriated by the State.

Disestablishment Act of separating Church and State. The Roman Catholic Church has been disestablished in France, Spain and other countries, and the Anglican Church in Ireland (1871) and in Wales (1920). The separation thus effected means that the church becomes self-governing; no longer are its bishops and other clergy appointed by the king and his ministers, but by the Church itself.

In the 19th century there was a strong agitation for the disestablishment of the Church of England, and in 1844 the Liberation Society was formed, countered by the Church Defence Institution. In the 20th century,

especially after the rejection by Parliament of the Revised Prayer Book in 1927 and 1928, there was a new movement for disestablishment, but this time it came from within the Church.

Disfranchisement Act of depriving people of the right to vote or to be represented on an elected body. Parliamentary constituencies have been disfranchised by Act of Parliament from time to time, chiefly because of their small size. This was done in 1832, 1867, 1884 and 1918. The electors, however, retain their right to vote, doing so in a larger constituency which includes the disfranchised one.

The disfranchisement of individuals is now a rare event, but conscientious objectors were so treated for a limited period after the Great War. At one time excise officials in Great Britain were not allowed to vote.

Disinfection Term applied to the process of destruction of the causes of infection by disease, and often loosely used to include deodorants and antiseptics. They act by destroying germ or bacterial life. A deodorant merely covers or destroys offensive odours.

Disinfection may be carried out in various ways, by burning, or the use of hot air, steam, or boiling water; by the use of oxidising agents, such as sulphurous acid, chlorine, permanganate of potash, etc.; by the use of substances which coagulate albumen, such as corrosive sublimate and copper sulphate, or by the use of poisonous agents such as phenol.

Disley Village of Cheshire. It is 6 m. from Stockport and 175 from London, on the L.M.S. Rly. Pop. 2960.

Dislocation Displacement of the ends of an opposed bone in a joint. It may be congenital, when due to a malformation at birth, spontaneous, when caused by disease of the joint tissues, or accidental, when resulting from violence. Besides displaced bones there may be bruised tissues and torn ligaments. Compound dislocations, attended by wounds communicating externally with the air, are sometimes accompanied by fractures. Unqualified surgeons who treat dislocations and fractures are colloquially called **bone setters**.

Dispatch Official communication sent away promptly or regularly. The term especially denotes the communications of ambassadors or military or naval commanders. Detailed accounts of naval and military operations, sometimes prepared leisurely, and preceded by condensed urgent *communiqués*, rank as dispatches, and units or men named in them as meriting special commendation are said to be mentioned in dispatches.

The use of dispatch riders for conveying messages between headquarters and units has marked military operations in all ages. The American Civil War utilised horsed riders, the S. African War cyclists, and the Great War motor cyclists.

Dispenser In Great Britain a person qualified under the Pharmacy Acts to compound medicines from physicians' prescriptions. A dispenser is qualified also to trade as a chemist and druggist. The examinations prescribed for dispensers are conducted by the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, London, W.C. There is also a Pharmaceutical Society in Dublin and a College of Pharmacy in Leeds.

The diploma of M.P.S. is given to successful candidates.

Pharmaceutical chemists, hospitals and general practitioners employ dispensers for compounding their medicines. Many women have now entered the profession.

Dispensing requires, in addition to a good general education, a knowledge of chemistry and *materia medica*, and of the British Pharmacopoeia and other recognised formularies; a practical acquaintance with the weighing and measuring of drugs and the system of dosage; and the ability to decipher the written prescription with its symbols and abbreviations.

Dispensing Power In England a power claimed by certain sovereigns of allowing individuals to break the law without being punished. It was claimed and exercised by James I. and other Stuart kings, especially by James II. In the Bill of Rights passed in 1689, it was declared illegal.

Dispersion Term used in optics for the separation of white light into its constituent colours by refraction through a prism. The rays having the longest wave length are refracted least, whilst those with the shortest wave length undergo most deviation. Sunlight is dispersed by refractions through rain-drops, to form the rainbow. Dispersion also occurs when light is refracted through a lens, giving rise to colours on the edges of the image focussed on a screen.

Displacement Term used of ships. It is the weight of water which a vessel displaces, and is usually expressed in tons. See **TONNAGE**.

D'Israeli Isaac. English writer. Born at Enfield, May 11, 1766, he was the son of Benjamin D'Israeli, a Jewish trader in London. He was educated in Amsterdam and began to write, his best known work being *The Curiosities of Literature*, published in six volumes. He also wrote *Calamities of Authors* and other books. D'Israeli became a Christian in 1817. He died at Bradenham, Bucks., Jan. 19, 1818, leaving one son, later the Earl of Beaconsfield (q.v.).

Disruption Term used for the secession of 420 members from the Church of Scotland in 1843. They differed from the others on the question of patronage and, led by Dr. Thomas Chalmers, they formed the Free Church of Scotland.

Diss Market town and urban district of Norfolk. It is on the Waveney, 19 m. from Norwich, on the L.N.E. Rly. John Skelton, poet and satirist, was rector here. There is a trade in agricultural produce. Pop. (1931) 3122.

Dissenter In Great Britain one who separates from the Established Church for reasons of doctrine, discipline or ritual. The word was applied to those who declined to accept the Act of Uniformity of 1662, but it denotes more particularly the Protestant dissenters referred to in the Toleration Act of 1689. In the Relief Act, 1791, English Roman Catholics were originally styled Protestant Catholic Dissenters. Members of the Episcopal Church of Scotland are technically dissenters from the Established Church of Scotland. Modern usage tends to prefer the epithet Nonconformist or Free Church.

The **Dissenting Deputies** is a body of laymen, representing the three denominations, Congregationalist, Presbyterian and Baptist.

Founded in 1732 it has the right of offering an address to the sovereign at his accession and at other times.

Dissecting Operation of cutting open or separating into parts, specifically the complete or partial cutting of animals or plants into component organs or tissues for examination and study. The provision of human bodies for anatomical study is governed by the laws of 1832 and 1871 before which they were obtained by illegal means, such as those adopted by Burke and Hare. Dissecting is part of the training of all medical students.

Dissertation Formal discourse or treatise. The word especially denotes a written essay or thesis, required of candidates for university degrees independent of set examinations. Such theses are offered for the degrees of Doctor of Literature, D.Litt., at London University, doctor-ès-lettres at Paris Sorbonne, and Doctor of Philosophy, Ph.D., at some German universities.

Dissolution Act of reducing to constituent parts an organised association. The term may denote the termination of a partnership, by effluxion of time or mutual agreement, duly notifiable in the *London Gazette*.

A **Dissolution of Parliament** precedes a General Election. It takes place on the advice of the Prime Minister, unless the parliament comes to an end because its period, in Great Britain five years, has expired.

Distaff Cleft stick for holding fibre in hand spinning. Usually of wood, the cotton, wool or flax was wound loosely upon it in readiness for the spinning. It was held under the left arm. The lower end rested upon the girdle or the ground, and the right hand drew out the fibre and twisted it on its way to the weighted spindle. It disappeared when large spinning wheels were introduced. Distaffs were in use in very early times. Their length was about 36 in.

Distemper Method of painting with pigments mixed with glutinous material, preferably egg yolk, soluble in water. Surfaces, usually wood or canvas, are coated with gum-mixed plaster. Such tempera, which was continued until oil-painting developed, still serves for scene painting and similar work.

In house decoration pigments mixed with size and body white are spread upon plastered walls. Called distempers, these often take the place of paper. They are easy to keep clean and can be obtained in a variety of colours.

Distemper Specific infectious and contagious fever attacking young dogs. Primarily catarrhal, it affects the mucous membrane of the eyes and nostrils. The running discharge impairs vision; the cornea may become ulcerated. Rigor, sneezing, loss of appetite, increased temperature and pulse, cough and diarrhoea may lead to other complications. Chorea frequently supervenes. Careful nursing, nourishing food and frequent bathing of the affected parts are essential. High-bred and pet dogs are peculiarly liable to distemper.

Distilling Converting a substance or its volatile constituents into vapour condensable into liquid drops. It extracts essential or volatile oils from plants, mineral oils from coal tar, fresh water and salt, and alcoholic spirit from fermented saccharine liquids.

The apparatus comprises stills containing the substance whose heating drives into their upper part vapour which passes through spiral tubes, or worms, surrounded by condensing water; the liquid drops fall into receivers. Stills are fire-heated pot stills, steam-heated patent, or Coffey stills, and rectifying stills.

Several substances are used for distilling. Brandy is distilled from wine. Rum is distilled from sugar cane and its molasses; also from beet. Whisky is distilled from starchy materials, chiefly grain, such as barley, rye, oats, wheat and maize. In these the starch is first fermented into sugar and the sugar then fermented for alcohol. Industrial alcohol is distilled from beet and molasses, also from potatoes and sawdust.

Distilling is a considerable industry in Scotland, where much of the world's whisky is made. A distiller must take out a licence, which varies according to the number of gallons distilled. For 50,000 gallons or under it is £10.

The **Distillers Company** is a London livery company; it dates from 1638 and its offices are in the Guildhall.

Distinguished Conduct

Medal British military decoration. Instituted in 1862, it is conferred on non-commissioned officers and men for "individual acts of distinguished conduct in the field." It is now awarded for services in action only. The ribbon has three stripes of equal width, the centre stripe being blue and the others red. It is called the D.C.M.

Distinguished Flying Cross

British decoration. It was instituted in 1918 solely for officers and warrant officers of the Royal Air Force, to whom it is awarded for conspicuous gallantry in action. It is a small cross with purple and white ribbon, striped horizontally, and is called the D.F.C.

The **Distinguished Flying Medal**, also awarded for gallantry in action, is given to non-commissioned officers and men of the Royal Air Force. The ribbon is purple and white striped horizontally. It is called the D.F.M.

Distinguished Service Cross

Naval decoration. It is given to officers of the navy below the rank of lieutenant-commander, including warrant officers, and is called the D.S.C. It was founded in 1901 as the Conspicuous Service Cross. The ribbon is three equal stripes, two blue with a white stripe in the centre.

The corresponding decoration for the lower ranks of the navy and marines is the **Distinguished Service Medal**. This dates from 1911. The ribbon is purple and white, and it is called the D.S.M.

Another **Distinguished Service Medal** is given to the men of the Indian army. It dates from 1907; the ribbon is violet with blue borders.

Distinguished Service Order

Naval and military decoration. It dates from 1886 and is called the D.S.O. It is given to officers of the army and air force for distinguished service in the field. Members are called Companions and have precedence before the 4th class Royal Victoria Order. A bar is awarded for an additional act of gallantry. The ribbon is red with blue edges and the badge is a Maltese cross. Over 8500 awards were made during the Great War.

Distrain Method of enforcing payment of a debt. The usual method

is for the creditor to sue the debtor, and, having proved his debt, to obtain an order calling upon the debtor to pay; if he fails to do this the creditor can send the bailiffs to his house, or business, and sell his goods. At one time the goods of a lodger could be seized for the debts of his landlord, but this was forbidden by law in 1908.

Arrears of rent are often obtained by a distress. Before the passing of the Rent Restriction Act during the war period, a landlord could distress without applying to the court. Under the Rent Restriction Acts an order of the court is necessary before this can be done. If a tenant removes his goods the landlord can distress upon them wherever they are within 30 days.

Distributor Flat or columnar switch-board for distributing electrical energy derived from a main supply through the various circuits comprised in a building or other system. In multiplex telegraphy, by cable or wireless, a rotating arm making in sequence contacts with levers controlled by selecting pins enables several messages to be transmitted and received simultaneously in connection with a single wire or aerial. Similar devices enable multi-cylindrical internal combustion engines to operate from a single source of energy.

District Defined portion of territory. Such is the district of Columbia, which includes Washington, in the United States. In England there are two kinds of district, urban and rural, each with an elected council, and controlled to some extent by the county councils. Urban councils, especially those with over 20,000 inhabitants, have much more extensive powers than the rural ones. The councils were set up in 1894.

Ireland had councils on the same plan. In Scotland the counties are divided into districts and district councils were set up by a law passed in 1929.

A district registry is an office where wills can be proved. There are about 40 of them in the large towns of England and Wales.

Ditchling Beacon Hill in Sussex. It is about 7 m. from Brighton and one of the highest points of the South Downs. It is now the property of the borough of Brighton.

Diuretic Medicinal agent tending to increase the flow of urine. Such agents, by increasing the flow, assist in eliminating morbid products or dropsical fluids. They may pass direct to the kidneys, diminish kidney congestion and relieve the heart.

Divan Persian word meaning a tribunal; also its registers, its place of meeting and the low raised seats round its walls. In the first meaning it denotes a state council, specifically Ottoman; the second passed into French as *divane*, a custom house; the third came to mean a smoking café or tobacco divan. A combination of seat and bed, suitable for flats, is called a divan.

Diver Genus of diving birds (*Columbus*). Of the four species, three, the great northern (*C. glaucialis*), with glossy black head and neck, the red-throated (*C. septentrionalis*), with reddish-grey throat patch, and, very rarely, the white billed (*C. adamsi*), are winter visitors to Britain, but breed inland in more northern regions. The black throated (*C. arcticus*), breeds in the Hebrides.

Divide Term used in the United States for an elevated water parting

between valleys. The Continental Divide is in Wyoming. Between Idaho and Montana rises Divide Peak. Queensland has a Great Dividing Range, and Victoria a Dividing Range.

Dividend (Lat. *dividendum*, something to be divided). Word used in mathematics for a sum to be divided by a divisor to obtain the quotient.

In law a dividend is a sum of money set aside out of a company's profits for distribution among the shareholders, usually by a percentage on their share holdings. The declaration of a dividend creates a specialty debt (i.e., a debt not barred for 20 years), due from the company.

By English law a dividend cannot be paid out of capital. Dividends on preference shares are cumulative or non-cumulative. If the former, any dividend that is not paid must be carried forward and paid before the ordinary shareholders receive anything.

Divination Quest or discovery of the unknown by non-rational methods. The processes observed are subjective, as in dreams, crystal gazing, trance speaking, dowsing and necromancy; or objective, depending upon inference from observed facts. Their interpretation developed schools of empirical deduction, traceable among Chaldean soothsayers and prevalent in ancient Rome. They observed live things such as birds and hands, dead things such as entrails, inanimate objects as in astrology and geomancy, mechanisms such as suspended keys and rings, and cast lots.

Divine Right Idea that kingship and other forms of authority are of divine sanction and cannot lawfully be set aside. It was strong in England in the 16th and 17th centuries, and especially held in connection with the Stuart kings. The idea, which is historically unsound, gradually lost favour, but societies still exist which regard it as an article of faith. Its supporters call themselves legitimists and believe that a member of the late ruling family of Bavaria, as being descended from Charles I., is the rightful king of Great Britain. See JACOBITES.

Diving Act of plunging into water. Diving has been adopted as the means of obtaining pearls and sponges from the sea bed in shallow waters. A diver can remain for only two to three minutes under water, and in many of the pearl and sponge fisheries diving apparatus is coming into general use.

For recovery of treasure and other purposes in deeper waters the diving dress consists essentially of a flexible waterproof or metal garment and copper helmet, provided with air tubes, signal line, telephone and outlet air valves.

Diving is also a pastime and competitions are held. The record for the longest time under water is 6 min. 29½ sec., held by a Frenchman.

Divining Rod Fork twig used in searching for something hidden. This method of divination, of great antiquity, is still employed by professional dowzers in searching for metalliferous deposits or water springs. Timber twigs, usually hazel, or metal wires and springs are held between the extended hands and give notice of the proximity of the object sought by more or less violent contortions. The frequent success of this method is sometimes attributed to the dowzer's capacity for perceiving obscure

indications which are communicated to the rod automatically.

Divinity Term for the godhead. In polytheistic religions the term denotes all gods and demi-gods.

It is also used synonymously with theology for the science of divine things. In Scotland **divinity halls** are theological colleges or university departments. **Doctors of Divinity** (D.D.) hold degrees, usually honorary, conferred by universities under varying conditions. There are regius professors of divinity at both Oxford and Cambridge and professors of divinity at the universities of London and Durham, the Scottish universities and Trinity College, Dublin.

Division In the United Kingdom a district that sends a member to Parliament. Each of the larger counties and boroughs is divided into several divisions.

In both houses of parliament the taking of votes is called a division. Members pass into one of two lobbies, the "ayes" in one and the "noes" in another. There they are counted and the result announced to the House by two members called tellers.

In military matters a division is the unit between an army corps and a brigade. It consists of three brigades of infantry, about 10,000 men, with appropriate artillery, engineers and other auxiliaries. It is usually commanded by a major-general.

Divorce Legal ending of the marriage tie. This branch of the law was long under the control of the church, which regarded divorce with great disfavour. As, however, the influence of the church weakened divorces became easier to obtain.

Divorce was allowed on very slender grounds by the Romans, but became much more difficult to obtain when Christianity was established in Europe. At the time of the Reformation some countries, Scotland for instance, began to allow it in cases of adultery.

In England the history of the law falls into three periods. Until 1857 a divorce could only be obtained by a special Act of Parliament, which meant that it was confined to the rich. In 1857 a law was passed which allowed a husband to apply for a divorce if his wife had committed adultery. A wife could only obtain a divorce if adultery was coupled with desertion or cruelty. Divorce could also be obtained for bigamy. A divorce court was set up and is now part of the probate, divorce and admiralty division of the high court.

In 1923 a law was passed which made the sexes equal in this matter. Adultery is now a ground for divorce by both husband and wife. If the case is proved the court grants a decree nisi (unless). If, at the end of six months, the parties concerned have not broken the law, the decree is made absolute, and they are free to marry again. Poor persons desiring a divorce on good grounds can obtain assistance from the Law Society, Chancery Lane, London, W.C.2.

There is a movement to make divorce still easier to obtain, in cases of insanity or serious mental trouble, for instance, and a Divorce Law Reform Union exists at 55-56 Chancery Lane, London, W.C., to urge such reforms.

In other countries the law varies greatly. In the United States each state has its own divorce laws, and divorce is very easy to obtain. In France it is allowed. In general it is most difficult to obtain in countries where the Roman Catholic church is strongest.

Dixmude Town of Belgium. It stands on the Yser, 12 m. from Ypres.

The town was much damaged during the Great War. Taken by the Germans, it was recovered by the Belgians in Sept., 1918.

Dnepropetrovsk Town and river port of Ukraine. It stands on the Dnieper, 250 m. from Odessa and is the fourth largest town in the republic. It is an important trading centre, as the Dnieper is navigable by large vessels, and has a number of manufactures. It occupies the site of a Polish fortress, where later a residence was built in 1787 for the Empress Catherine II. This was called in her honour Ekaterinoslav and round it the town grew. In April, 1918, it was taken by the Germans; later the Soviet authorities changed its name. Pop. 290,000.

Dnieper River of the Ukraine. It rises in the Valdai Hills and enters the Black Sea, just below Kherson. It is navigable and is used for bringing down corn for shipment at Odessa, artificial channels having been cut to avoid the rapids. It is over 1300 m. long and is linked by canals with other rivers.

Dniester River of Europe. It rises in Poland and passes through the Ukraine and Rumania to the Black Sea, which it enters near Odessa. It is used for bringing down grain for export from the Black Sea ports. Its length is 750 m. and canals unite it with other waterways.

Dobell Sydney Thompson. English poet and critic. Son of a wine merchant, he was born at Cranbrook, Kent, April 5th, 1824. Though he assisted his father in business at an early age he wrote verse and studied continuously. In 1850 the publication of *The Roman brough* in instant success. *Valder*, published in 1851, was followed by *England in Time of War*, 1856, and many other poems. Dobell died at Nailsforth, Gloucestershire, Aug. 22nd, 1874.

Dobrudja District of Rumania. It covers about 8000 sq. m. and lies between the Black Sea, Bulgaria and the Danube. Constantza is the chief town. A good deal of it is marshland, but other parts are fertile soil. Dobrudja was taken from Turkey and given to Rumania in 1878. In 1916 it was conquered by the Austro-German armies and in 1918 was handed over to Bulgaria. It became Rumanian again by the treaty of 1919.

Dobson Frank. English sculptor. Born in London, Nov. 18, 1887. He studied art in London and in Cornwall. At first he worked both as a painter and a sculptor, and his pieces attracted a good deal of attention when exhibited in 1909. Afterwards he gave his time almost entirely to sculpture and produced some notable work, including busts of Lord Oxford and Asquith and Lydia Lopokova.

Dobson Henry Austin. English writer and poet. Born at Plymouth, Jan. 18, 1840, he became a civil servant, entering the Board of Trade in 1856. In 1873 he published *Vignettes in Rhyme* and from that time onwards was known as a graceful writer in both prose and verse and a discerning critic, with a wide knowledge of modern literature. He wrote lives of Steele, Goldsmith, Horace Walpole, Fanny Burney and others, volumes of verse and many articles and reviews, as well as essays and introductions. Dobson died Sept. 2, 1921.

Dock Enclosure, usually in a port, for the reception of vessels. It is made by

enclosing some part of a harbour or river with strong walls. Where the tide rises and falls considerably, gates are necessary. Gateless docks are called tidal basins.

The usual division of docks is into wet and dry. The former are docks in which vessels can lie while being loaded or unloaded. The latter are docks from which the water can be excluded so that ships can be cleaned or repaired. Dry docks are divided into graving docks, slip docks and floating docks. All serve the same purpose. The slip dock is a graving or repairing dock with a slipway leading out of it. The floating dock is a movable repairing dock.

The steady increase in the size of ships has led to a corresponding increase in the size of docks, and in all the great ports the tendency is to build larger ones. Each dock is fitted with machinery and apparatus for dealing with cargo, and warehouses for storing it.

In the large ports, such as London, certain docks are set aside for certain classes of merchandise. In one dock coal is handled, in another oil, and so on. The King George V. dock, opened in 1921, one of the largest in the world, covers 186 acres. The total area of the docks in London is over 700 acres with a further 700 at Tilbury. The London docks are under the Port of London Authority; in other places docks are controlled by a dock and harbour board, as at Liverpool, or a railway company, as at Southampton, or by the local council.

A dock warrant, which must be stamped, is a document showing to whom the goods in a dock belong. It can be used as security for a bank loan.

Dock Genus of biennial and perennial herbs of the polygnum family (*Rumex*). They are native to all temperate climates. They have tapering rootstocks, alternate leaves, and whorled clusters of small greenish flowers bearing leathery three-sided fruits. A dozen British species, sometimes troublesome weeds, include the bitter, or broad leaved, dock, golden, water, and sour dock, or sorrel.

Dockyard Any place where docks are, but in practice confined to a place maintained by a government as a base for warships. It contains facilities for docking and repairing the ships, for victualling them and preparing them for sea, sometimes for building them. The chief English dockyards are Portsmouth, Devonport and Chatham. Since the Great War Pembroke has been closed and Rosyth partly closed. The Admiralty also maintains dockyards at Gibraltar, Bermuda, Hong-Kong and elsewhere.

Doctor Term for a man of learning. There are doctors in all branches of learning, men who have received from a university the degree of doctor, whether in law, divinity, philosophy, science, music or medicine. These degrees are usually given after the writing of a thesis or sometimes without any test.

The word is most generally used, however, for a qualified medical practitioner, whether or not he or she has obtained a doctor's degree.

Doctors' Commons District of London. It is near St. Paul's Cathedral and is named after a college of lawyers which had its headquarters here from 1768 to 1857. Its members were chiefly concerned with ecclesiastical cases, which then included divorce and probate matters.

Doctrinaire In politics, economics, science or art, a theorist who follows one narrow principle or group of principles regardless of practical considerations. After Louis XVIII's second restoration in 1815, the name was applied derisively to the statesman philosopher, Royer-Collard, and his royalist following, who advocated a constitution on historical principles, opposed to absolutist and revolutionary ideas.

Dodd Francis British artist. Born at Holyhead, Nov. 29, 1874, son of a Wesleyan minister, he studied art in Glasgow and Paris, and made his reputation with his sketches of generals and admirals during the Great War, when he was an official artist. In 1927 he was elected A.R.A.

Doddridge Philip English divine. Born in London, June 26, 1702, he spent most of his adult life in Northampton where he was minister of a Non-conformist church and founder of a college for training ministers. He is best known for his hymns, which include "O God of Bethel," and "Hark, the glad sound," and as an early believer in shorthand. He died in Lisbon, Oct. 26, 1751.

Dodecanese Name of twelve islands in the Aegean Sea. They lie between Crete and Asia Minor and include the Island of Patmos. For long they belonged to Turkey. In 1912 they were seized by Italy, but they were not formally ceded to that power until 1921. Since the Italian occupation the name has been applied to the Thirteen Southern Sporades.

Dodman The Point on the coast of Cornwall. It is 8 m. from St. Austell on the south coast and stands 270 ft. high. Sir A. Quiller-Couch refers to it as Dead Man's Rock. It is the property of the National Trust.

Dodo Large flightless bird of the pigeon order (*Didus ineptus*). Found inhabiting Mauritius when discovered by the Portuguese in 1507, it is known to have survived to 1681, but is now extinct. Several almost complete skeletons have been constructed from abundant finds of bones. It was clumsy and defenceless, with stout bill, short legs, stumpy tail and downy feathers.

Dodworth Urban district of Yorkshire on the L.N.E. Ry., it is in a coal mining district. Pop. (1931) 4248.

Doe John One of two fictitious names, once used in legal procedure for the sake of convenience. The other was Richard Roe. When a litigant could more conveniently bring an action in a fictitious name than in his own, or against a fictitious person, one of these names was used. The practice was abolished in 1852.

Dog Domesticated quadruped. It is derived from one or more species of the canine genus of flesh eating mammals. The systematic name, *canis familiaris*, is a conventional, not a zoological, classification. Its nearest congener is the wolf, their crossing producing fertile offspring, but some breeds suggest other ancestral relationships, as the jackal and the hyena.

Dogs may have domesticated themselves in mesolithic times; ten thousand years of human associations have developed mutual trust and affection.

Dogs are classed as sporting and non-sporting. There are many kinds, widely

different in size and other qualities, and new breeds are evolved from time to time. The Sealyham terrier and the Corgi are recent breeds. They range from large dogs such as the Alsatian wolfhound and the bloodhound, to tiny pet dogs. The terriers form one large group and the spaniels another. The foxhound, the greyhound and the harrier are the chief sporting dogs.

Dogs are chiefly kept for companionship, but they are still useful for guarding houses and property, especially in country districts. In the Arctic regions they are used to some extent for drawing sledges.

The breeding of dogs is a considerable industry. The first dog show was held in 1859, and in 1873 the Kennel Club was founded. There are now over 520 shows, Cruft's being the chief. Another organisation is the Tail-waggers' Club at Temple Avenue, London, E.C. In Great Britain a licence of 7s. 6d. a year must be taken out for a dog unless it is kept by a shepherd or a blind person. The owner of a dog is liable for any damage or injury done by it.

Dog Days Period beginning between July 3rd and August 15th, and lasting for 30 to 54 days. The heat and unhealthiness of these days in ancient Egypt were held to be due to the rising of the dog star. Now the period is generally considered to last from July 3rd to August 11th.

Doge Title of the chief magistrate in the Venetian and Genoese republics. In Venice in the 8th century city tribunes were replaced by a single *dux*, or leader. He was chosen for life and the office lasted until the overthrow of the republic in 1797. In Genoa the doge first appeared in the 16th century. He was elected for life, later for two years.

Dog-fish Several species of small sharks. They are found in packs in temperate and tropical waters. British species include the large-spotted nursehound (*Scyllium catulus*) and the small spotted roughhound (*S. canicula*). They are marketed as rock salmon and their rough shagreen skin is used for polishing wood. The more abundant dogfish (*Acanthias vulgaris*) produces the young alive; the other species produce them from eggs. The fish is from 3 to 5 ft. in length.

Dogger Bank Sandbank in the North Sea. It is between Britain and Denmark, covers about 1200 sq. m. and is famous for its cod. Here on Oct. 21, 1904, during the Russo-Japanese War, a Russian fleet inadvertently fired on some British trawlers and did some damage for which compensation was paid.

On Aug. 5, 1781, there was a sea fight here between the English and the Dutch, but neither side gained any advantage.

BATTLE OF DOGGER BANK. On Jan. 21, 1915, the German cruisers crossing to attack the British coast were met on the Dogger Bank by some British cruisers under Sir D. Beatty. The Germans retreated, followed by the British, and a fight took place. Beatty's ship, *Lion*, was hit and, while he was out of action, the fight was broken off about 90 m. from Heligoland. The British losses were slight. Of the German ships *Blücher* was sunk and *Seydlitz* and *Derfflinger* damaged.

Doggett Thomas. Irish actor. Born in Dublin, he appeared on the London stage in 1691 and soon became one of the leading actors of the day. He acted in some of Congreve's comedies and died in 1721.

In 1715 Doggett gave some money for a race for watermen on the Thames. The course is from London Bridge to Chelsea, and the prize is known as **Doggett's Coat and Badge**. The race is rowed annually on Aug. 1.

Dogma Opinion, stated positively, and supposed to have been previously shown to be true, as opposed to one deduced from experience or demonstration. In theology it was intended to mean a doctrine defined by the church, and put forward, not to be discussed, but simply believed. But as this method of stating truth often comes to mean the assertion of unfounded opinions, *dogma* has come to be used in English for an assertion without any proof; hence **dogmatism**, meaning uncritical acceptance of beliefs or principles.

Dog Rose Prickly bush of the rose order. It is a native of Europe, Siberia and N. Africa (*Rosa canina*). Britain's largest wild rose, it grows in thickets and hedgerows. It has hooked prickles scattered uniformly on long arching branches, and white or red flowers bearing crimson hips. About 30 varieties are found.

Dogs Isle of. District of London. Formerly a peninsula jutting out into the Thames, opposite Greenwich, it was made into an island when the docks were built. From it there is a tunnel under the river to Greenwich. The name is said to be due to the fact that the king's kennels connected with the palace at Greenwich were here.

Dog Star Alternative name for Sirius, the brightest star in the heavens. It is found in the constellation Canis Major. It was regarded by the ancients as herald of the hot season, hence the term "Dog days."

Dog Watch Period of time on board ship. It lasts from 4 p.m. to 8 p.m. and is divided into the first and second dog.

Dogwood Genus of shrubs and small trees of the cornaceous order. They are native of temperate and subtropical regions. The common *Cornus sanguinea* has egg-shaped leaves, reddening autumnally, and clustered cream-white flowers bearing black-purple berries. The tough wood serves for ladder spokes and skewers. The berry-bearing alder (*Rhamnus frangula*) is sometimes called black dogwood.

Dolcoath Village of Cornwall. It is near Camborne and is famous for its copper mine, one of the richest in England.

Doldrums Name given by sailors to a belt of low pressure in the equatorial regions where the N.E. and S.E. trade winds meet. In the days of sailing ships vessels were often becalmed in this region, which is characterised by heavy rains and violent thunderstorms.

Dole See UNEMPLOYMENT.

Dolgelley Market town and urban district of Merionethshire, also the county town. It is on the G.W. Rly. 230 m. from London and stands amid beautiful scenery, Cader Idris being near. Pop. (1931) 2261.

Doll Puppet representing the human figure. Its use as a plaything is traceable in very early times, and examples exist from 18th dynasty Egypt, western Asia, Greece and Rome. Cortes found Montezuma and his court

playing with elaborate dolls; some encountered in negro Africa apparently have a magical significance. American Indians and Eskimos also use them.

Dolls are very popular toys and making of dolls, dolls' houses and dolls' perambulators is an important branch of the toy industry.

Dollar Burgh of Clackmannanshire. It is 6 m. from Alloa, on the L.N.E. Rly. It is famous for its school, Dollar Academy, built in 1819. Near are the ruins of Castle Campbell. Pop. (1931) 1485.

Dollar Silver coin. The word is a variant of thaler, and the first dollars were the Spanish pieces of eight. To-day the dollar is the monetary unit of the United States, Canada and Newfoundland. It is worth 4s. 1d. and is divided into 100 cents. It circulates chiefly in the form of paper money, but silver dollars are coined. Adopted in 1792, the American dollar is based on a gold standard and its par value is normally 4.86 to the £ sterling.

The Mexican dollar and the dollar that circulates in the Malay States is a coin of 2s. 0½d., or just about half the American dollar. The Mexican dollar is also called the peso.

Dollis Hill District of London. It is near Hendon, to the N.W. of the city, on the Metropolitan Rly. The grounds of Dollis Hill house, once a residence of the Earl of Aberdeen, have been cut up for building land.

Dolmen Megalithic chamber. It consists of an unhewn capstone poised on two or more unhewn uprights. They originated under neolithic conditions as sepulchres for eminent persons and were covered with earth or stone. They are sometimes mistakenly called cromlechs or druid altars. A few are found in England, chiefly in Devon and Cornwall. There are many in Ireland and they are found throughout Europe, especially in France, Asia and N. Africa. From the dolmen the corridor tomb was developed.

Dolomite Magnesian limestone. It is composed of carbonate of lime and carbonate of magnesia in almost equal proportions. Brittle and lustrous it is used in the production of steel and for building purposes. It is found in England and Scotland and in the Alps, there is a good deal also in Canada and the Transvaal. Dolomite is named after a French geologist, D. G. de Dolomieu (1750-1801).

A division of the Alps is called the Dolomites. This is in the Trentino and stretches north from Trent. A district of the Transvaal is known as the Dolomite region.

Dolphin Cetacean mammal (*Delphinus delphis*). It inhabits the Mediterranean and temperate Atlantic waters. Black with yellowish stains, it follows ships in large herds, being often entangled in mackerel and pilchard nets in the English Channel. With sharp snouts they are about 7 ft. long. The dolphin family includes the bottle-nosed, white-beaked and white-sided varieties. Several freshwater dolphins of another family occur in the Ganges, Amazon and La Plata rivers. British fishermen improperly call the coloured fish *Coryphæna*, the Portuguese dorado, a dolphin.

Dome Hemispherical structure forming the roof of large buildings and supported on arches, triangular vaulting, low walls or corbels. The dome is characteristic

of Coptic, Byzantine and Mohammedan architecture. The Copts used it for churches of the basilica type, the Byzantine architects roofed large spaces with groups of domes and semi-domes, while in Mohammedan architecture the dome, first used for burial places, became the distinctive feature of mosques. The great central dome of the Pantheon at Rome is a fine example.

In England, famous domes are those of S. Paul's Cathedral, strengthened in 1929 by a massive chain, and the British Museum. The dome of S. Peter's, Rome, is 139 ft. in diameter; that of S. Sophia, at Constantinople, is 115 ft. or a little larger than that of S. Paul's, London.

Domesday Book Survey of England. It was drawn up by order of William the Conqueror in 1086 and gives an account of England as it then was. It states for each county, except those in the north, who are the holders of the land and what each holding is worth; also what it was worth in the time of Edward the Confessor. Other details given are the names of the landholders, the numbers of villen, cottars and others on each holding, the numbers of oxen, pigs, etc., and a good deal of miscellaneous information. A careful study of the book has thrown a vast amount of light upon the social and economic conditions of the time. The original is in the Public Record Office, London; facsimiles have been printed.

Domestication Process of acclimating animals and plants to live and propagate under human control. It comprises controlled mating, food provision, shelter and training for specialised services. Dogs were perhaps self-domesticated before they were bred for herding and hunting in Asia and Egypt in neolithic times. Tamed horses, asses and camels were milked before man broke them in for riding and transport. Domesticated cattle, goats and other animals may have been tamed by milking them for sacrificial purposes.

Domestic Science Practice of conducting the work of the home. It includes cooking and the various cleaning processes. Of late years much attention has been paid to training in housecraft; many schools for girls have classes for the various subjects, and there are training colleges in the large towns, as well as schools for cookery. Some of them, as in Manchester, are under municipal control.

For Teachers of Domestic Subjects, courses are provided at King's College, London; National Training School of Cookery, Buckingham Palace Road, S.W.1; Training College of Domestic Subjects, Berridge House, Fortune Green Road, N.W.6; Battersea Polytechnic Domestic Science Training College, S.W.11; and in the provinces there are several Training Colleges of Domestic Science—Gloucester, Bath, Leeds, Leicester, Liverpool, Manchester, and Newcastle-on-Tyne.

Domestic Servant Person employed in a house for work therein. In 1921 there were over 1,200,000 domestic servants in Great Britain, so it is now one of the largest of occupations, at least for women. The domestic servant of the 19th century usually lived in the house, but to-day a large proportion go daily to their work and live at home. Domestic servants must be insured by their employers under the national health scheme. The total

weekly premium is 1s. 1d. and includes a payment towards the Old Age pension. They are not insured against unemployment, but the employer is liable if accidents happen to them in the course of their work.

Domicile In English law the place of a man's permanent abode. It begins with a domicile of origin, that of his parents at his nativity. On reaching his majority he may acquire a domicile of choice in another state, if he intends to remain there. A married woman's domicile is that of her husband.

Dominic Spanish saint. He was born of good family in 1170 at Calaroga, in Spain, was ordained in 1195, and, as an Augustinian canon, was sent by Innocent III. to fight the Albigensian heresy. Succeeding as a persuasive missionary, he was permitted to found the order of preaching friars in 1218 and lived to see it flourishing in Toulouse and elsewhere. He died on Aug. 6, 1221, and was canonised in 1234.

Dominica Island of the West Indies, one of the Leeward Islands. A British possession, it is 29 m. long and covers about 300 sq. m. It lies between Guadeloupe and Martinique. Roseau is the capital and the chief seaport. The island is mountainous, but much of the soil is fertile and tropical fruits are grown, including limes, used for making lime juice. It is governed by an elective council. Pop. 41,000.

Dominican Order of preaching friars. It was founded by S. Dominic at Toulouse in 1215. Based upon S. Augustine's monastic rule, it received papal sanction in 1218. The Dominicans came to England in 1221 and were called the Black Friars because they wore a black mantle and secular over a white habit. They established 57 British friaries and one nunnery before the dissolution of the monasteries. Their English province was reorganised in 1850.

Dominican Republic Name sometimes used for the West Indian republic of Santo Domingo (q.v.).

Dominion Word denoting lordship or authority. It was chosen from Ps. lxxii to designate Canada when its provinces were federated by the British N. America Act, 1867. The union proclaimed July 1, is celebrated annually as a national holiday called Dominion Day. The name, taken by New Zealand, 1907, also embraces other parts of the British Empire which have attained Dominion status. There are six of these Dominions: Canada, Australia, New Zealand, Newfoundland, the Union of South Africa and the Irish Free State. The **Dominions Office**, created in 1925, transacts business with the Dominions, previously transacted by the Colonial Office.

Domino Originally a priestly hood worn by clerics. It came to be used for a hooded cloak with wide sleeves worn with a half mask to conceal the features at a masked ball. The half mask itself is called a domino, as is the person who wears it.

Domitian Roman emperor. A son of the Emperor Vespasian, his full name was Titus Flavius Domitianus Augustus. Having been proclaimed emperor by the soldiers in A.D. 81 in succession to his brother Titus, he ruled badly, had to buy peace on disgraceful terms from Decebalus, King of Dacia, and through jealousy recalled Agricola from Britain. At last his cruelty

made him so hated that a conspiracy was formed and he was murdered by a freedman in A.D. 96.

Domodossola Town of Italy. It is on the French frontier, on the railway line through the Mont Cenis pass to Turin. Here the customs officials examine the luggage of travellers.

Don Spanish title. Equivalent to the English Sir, it was once used solely by the nobility, but is now used in all classes. The term is also used for members of the teaching staffs at the universities of Oxford and Cambridge, and to some extent in other universities.

Two famous dons of fiction are **Don Quixote**, the hero of Cervantes' great novel, and **Don Juan**, the hero of Byron's poem. In real life there were several dons in Spanish history. **Don John**, the victor of Lepanto, was a natural son of Charles V. Another **Don John**, immortalised in Schiller's poem, was the unfortunate son of Philip II. of Spain.

Don River of Aberdeenshire. It rises on the borders of Banffshire and flows E. and enters the North Sea at Aberdeen. It is 82 m. long and the district through which it flows is called Donside. There are paper mills on its banks.

Don River of Yorkshire (W.R.). It rises in the Pennines and flows S.E. past Sheffield and Doncaster and enters the Ouse at Goole. It is 70 m. in length.

Don River of Russia. It rises in Lake Ivan and flows in a southerly direction until it falls into the Sea of Azov. It is 1325 m. long and is much used, except in winter, for the transport of grain and cattle. The chief of its many tributaries is the Donetz, which is 670 m. long and flows through a rich coalfield.

The Cossacks of the Don territory were famous and a territory of Russia was named after them. For a short time after 1919 this was the Don Republic, but it is now part of Ukraine.

Don Kaye, British racing motorist. Born in 1894, he entered the Air Force. In 1924 he made a record at Brooklands, but failed to beat Sir W. Segrave's record. In 1931 he made a world record in a motor boat of 89.9 nautical miles per hour in Miss England II, on the Purana river. Later, on Lake Garda, he established a record of 110 m.p.h.—a speed later exceeded by the American, Gar Wood. On July 18, 1932, on Loch Lomond, Don broke the world's record in Lord Wakefield's Miss England III, with a speed of 119.81 m.p.h.

Donaghadee Port and market town of Co. Down, Northern Ireland. It is 25 m. from Belfast, and is situated on the south side of Belfast Lough. Dairy produce and cattle are exported and some coal is imported. A mail service was formerly operated from here to Portpatrick in Scotland. Pop. 2220.

Donatello Italian sculptor and painter. Born in Florence about 1386, his name was Donato di Niccolò di Betto Bardì. He executed many fine statues in marble and bronze, his work being distinguished by a close adherence to nature and keen sense of proportion. His masterpiece, "David," is at the Bargello, Florence, and at Padua there is an admirable equestrian statue. For Cosimo de' Medici he executed, partly in relief and partly in painting, "The History of the Evangelists," for the church of San Lorenzo, Florence. His "Judith" is also in Florence. He died in Florence, Dec. 13, 1466.

Doncaster Borough and market town of Yorkshire (W.R.). It stands on the River Don, 156 m. from London, with stations on the L.N.E. and L.M.S. Ryhs. Its population has grown a good deal in the 20th century owing to the opening of coal mines in the neighbourhood. There are engineering works, railway shops and manufactures of glass, artificial silk, etc. The town is a famous racing centre, and on Town Moor the St. Leger is run. Pop. (1931) 63,308.

Donegal County of the Irish Free State. In the province of Ulster, it occupies the N.W. corner of the country and covers 1860 sq. m. It has a long coastline of 165 m. on the Atlantic Ocean where there are many inlets, Lough Swilly being the chief. The scenery both on the coast and inland is remarkably fine, being wild and mountainous. Erigal is the highest peak and Derg the largest lake. The Foyle is the longest river. The people are chiefly engaged in keeping cattle and pigs, and in fishing. The county is served by a system of light railways. Lifford is the county town. Other places are Letterkenny, Ballyshannon, Bundoran, Raphoe and Donegal. Moville and Rosapenna are popular watering places. Aran Island belongs to the county. Pop. (1926) 152,508.

The title of **Marquess of Donegal** has been borne since 1791 by the family of Chichester. In 1612 Sir Edward Chichester, Lord Deputy of Ireland, was made a baron. In 1647 a later baron was made Earl of Donegal. The family estates were in counties Donegal and Antrim.

Donegal Market town of Co. Donegal, Irish Free State. It stands on Donegal Bay, an opening of the Atlantic between the counties of Donegal and Sligo. The bay is 35 m. long and at the entrance 30 m. wide. The town is connected by railway with Londonderry. Pop. 1100.

Doneraile Market town of Co. Cork, Irish Free State. It has a station on the G.S. Ryhs. 7 m. from Mallow. Here Spenser wrote *The Faerie Queen*.

The title of **Viscount Doneraile** has been borne by the family of St. Leger since 1785.

Dongola Town of the Sudan. It is on the left bank of the Nile, about 600 m. N. of Khartum, and is a prosperous trading centre. It was the British base in the campaign against the Mahdi in 1884-85. Pop. 20,000.

Dongola is called New Dongola to distinguish it from Old Dongola, a town on the right bank of the Nile, some 75 m. to the S. This was once the capital of a kingdom which was named after it, but is now an unimportant place.

Don Juan Legendary character, appearing in the folk tales of many countries. He is first found in written literature in a Spanish play of about 1630, and became the type of the blasphemous sensualist. His popularity is largely due to the musical settings of his adventures, notably those of Purcell, Gluck and Mozart.

Donkey Engine Small type of steam engine. It is used for working a crane or hoist or for pumping water into a boiler or tank, and is attached to a larger engine or to a special boiler. In this type the piston, driven by steam from the boiler, acts directly on a plunger in a pump cylinder, the action being controlled by a fly wheel.

Donne John. English divine and writer. Born in London in 1573, the son of a merchant, he was educated at Oxford and Cambridge. He served as a soldier and travelled, later becoming a secretary to Lord Egerton, the Lord Keeper. He was already a barrister and he became friendly with many eminent men. He was married secretly in 1601 to a daughter of Sir George More, the lady being also related to the Lord Keeper. This cost him his position and brought a spell of imprisonment. In 1614 Donne was ordained. The king made him one of his chaplains; he became vicar of Keyston, Hunts, and of Sevenoaks, and in 1621 was appointed Dean of St. Paul's, London. He died March 31, 1631.

Donne's works include many poems and sermons, including the great *Death's Duel*, the work of a scholar and a thinker, who also possessed a graceful style of writing. His poems were not published until after his death.

Donnybrook Suburb of Dublin. It is famed for the fair which was held here each year from 1204 until 1855. It was then a village outside the capital, and its fair won a reputation as the most rowdy of all the Irish fairs.

Donoghue Stephen. English jockey. Born in 1894, he rode his first important winner in 1910, when he won the Cambridgeshire. Other successes followed, and after the Great War he was the leading English jockey, a position he retained for some years, riding 143 winners in 1920. On six occasions he rode the winner of the Derby. Donoghue also became known as a painter, having a picture hung in the Academy in 1925.

Donoughmore Village of Cork, Irish Free State. It is 13 m. from Cork and from it the family of Hely-Hutchinson takes the title of earl. This was given to Richard Hely-Hutchinson in 1801 and has since been held by members of the family. The earl's eldest son is called Viscount Suirdale.

Doom Term for the Last Judgment. This theme frequently inspired mural paintings in mediaeval churches, and dooms were usually represented on the chancel arch. The crude realism of weighing the souls in the scales and immersing the doomed in burning caldrons offered a perpetual warning to worshippers. Once almost universal, many were destroyed at the Reformation, but more than 100 English dooms survive. Examples are at Chaldon, Surrey, and Shortampton, Oxon, and there is a fine one in the cathedral at Gloucester.

Doon Lake and river of Ayrshire. The loch, 5½ m. long, is in the south of the county on the borders of Kirkcudbright, and contains five small islands. The river runs from the loch to the Firth of Clyde near Ayr. It is 36 m. long and is the stream immortalised in Burns' poem "Ye banks and braes o' bonnie Doon."

Doone Name of a famous Exmoor family. The Doones are chiefly known because of R. D. Blackmore's romance, *Lorna Doone*, but they had a real existence. They appear to have been a band of robbers who, in the 17th century, lived in the valley of the Bagworthy. About 1700, soldiers were sent to root them out, after which little more was heard of them.

Dope Term used for certain poisonous drugs. Such are cocaine, heroin and opium and their continued use causes a

drug habit in its victims. The sale of these drugs is strictly regulated by law in Great Britain, and international efforts are being made to stop the traffic in dope in various countries.

Doppler Effect Apparent change in frequency of vibration due to relative motion of the observer. The sound of a locomotive whistle alters in pitch on approaching or receding from an observer. In 1842 Doppler suggested a similar effect in light waves which has since been demonstrated and usefully applied in astronomical spectroscopy to the investigation of double stars.

"Dora" Popular name for the Defence of the Realm Act, passed in Aug., 1914, at the beginning of the Great War. Some of the regulations made under it were still in force in 1932. See DEFENCE.

Dorcas Society of women who make clothes for the poor. It is called after Dorcas (Tabitha) the charitable woman mentioned in Acts ix. 36-42.

Dorchester Borough and county town of Dorset. It is 135 m. from London, on the G.W. and S. Rlys. S. Peter's church, in the perpendicular style, has a fine tower. There is an interesting county museum. The town has an agricultural trade and there are breweries. Dorchester is interesting because of the extensive early British and Roman remains in and near the town, and for its connection with Thomas Hardy, the writer (q. v.). Near by is a wireless transmitting station. Pop. (1931) 10,030.

The title of **Baron Dorchester** was borne by the family of Carleton from 1786 to 1897. The first baron was Guy Carleton, Governor of Quebec, 1775-78, and Governor-General, 1786-94. He died Nov. 10, 1808. The title was recreated in 1899 for Henrietta Anne, daughter, of the 3rd baron.

Dorchester Village of Oxfordshire. It is on the River Thames, 9 m. from Oxford. It is famous for its church, once the church of an abbey, and for its other ecclesiastical associations, as it was the headquarters of a bishopric from 635 to about 1080.

Dorchester House Residence in Park Lane, London, now demolished. Built in 1851-53 for Sir George Holford, it was one of the finest residences in London, with a wonderful collection of pictures, books and works of art. In 1926 it passed to the Earl of Morley, who afterwards sold it. An earlier mansion was the residence of the earls of Dorchester. The site is now occupied by a hotel called the Dorchester.

Dordogne River of France. It rises in the Puy de Dôme mountains and flows for some 300 m. mainly in a westerly direction until it joins the Garonne. The two form the estuary of the Gironde. Its chief tributaries are the Cère, Isle and Vézère.

An inland department of France is named after the river. Its extent is 3550 sq. m. In the rocks of the valley of the lower Vézère are prehistoric caves, important for the study of Palaeolithic man. Périgueux is the capital.

Dordrecht (or Dort). Town of the Netherlands. It stands on an island in the Meuse, 12 m. from Rotterdam, a prosperous river port with a number of manufacturing industries. Much of its trade goes by canal or along the Meuse and the

Merwede, which flow through the town. The chief buildings are the 14th century church, with a lofty tower, and the restored town hall. Pop. 55,000.

Here in 1618-19 the Synod of Dort met. Its aim was to settle the points at issue between the Calvinists and the Arminians. In the end the teaching of Arminius was condemned.

Doré Paul Gustave. French artist. He was born at Strasbourg, Jan. 6, 1832. Coming to Paris in 1848, he painted many religious and historical works and achieved some success as a sculptor. His fame, however, rests upon his remarkable skill as a draughtsman and illustrator. Doré illustrated a great number of standard books including the Bible, *Paradise Lost*, Dante's *Inferno*, the works of Rabelais and Balzac, and *Don Quixote*. His work was very popular in England, and a Doré Gallery was opened in London. He died in Paris, Jan. 23, 1883.

Dorian One of the four great divisions of the Hellenic race, the others being the Aeolian, Ionian and Achaean (q. v.). After considerable wandering, they finally migrated to the Peloponnese, where they became the governing class and reduced the old inhabitants to slavery. Their mythical ancestor was supposed to be Dorus, a son of Hellen.

Doric Order One of the principal orders of Greek architecture. It represents the earliest and simplest type of composition. The column, which has 20 flutes meeting in sharp edges, has a plover capital, but no base, and varies in height from four to six times the diameter.

Dorking Market town and urban district of Surrey. It is on the River Mole, 26 m. from London, and is served by two branches of the S. Ry. Dorking stands in the midst of some of the most beautiful of the Surrey scenery, Box Hill, Ranmore Common and other beauty spots being near. The Glory Woods are public property. The place has many literary associations, Malins, Meredith, Fanny Burney and others having lived here. Pop. (1931) 10,109.

The **Dorking** is the name given to a breed of domestic poultry once extensively raised in the Surrey town. It is a valuable table bird, especially when crossed with the English or Asiatic game fowl. The cocks may weigh 14 lb. The hens lay freely.

Dormer Architectural term for a vertical window in a projection from a steeply sloping roof of a building, designed to give light to the interior. In some buildings rows of simple dormers were placed in the roof, but in many of the Gothic and Renaissance style richly decorated dormers of masonry are seen.

Dormouse Family of small arboreal rodents (*Myocidae*). They are widely distributed from Britain to Japan. Unlike the squirrels, they hibernate half the year in nests in which nuts are stored. The graceful English dormouse (*Muscardinus aetolanarius*) has a hairy tail, prominent eyes and unfurred ears. It consumes insects as well as hazel nuts and corn. The continent of Europe possesses larger edible and garden forms; there is also a N. African genus.

Dornoch Royal burgh and watering place of Sutherlandshire; also the county town. In the south of the county, it is on Dornoch Firth, 58 m. from Inverness, on the L.M.S. Ry. Once the seat of a bishop,

it had a cathedral, restored in 1837. There are ruins of a castle. Pop. 2670.

Dornoch Firth is an inlet of the North Sea between the counties of Sutherland and Ross and Cromarty. It is 22 m. long and is a noted fishing area.

Doronicum Genus of asteraceous plants of the order compositae. The garden doronicum (*Arnica montana*), or leopard's bane, is a hardy perennial two or three feet in height, with large golden daisy-like blooms. It is easy of cultivation in any soil, preferably in a shady position. Plants should be cut down after flowering and increased by division in the autumn.

Dorset County of England. In the south of the country, it covers 987 sq. m. and has a coastline of 75 m. on the English Channel. Portland Bill is a feature of the coast. It is almost wholly an agricultural and rural area, although it is famous for its stone, especially Portland and Purbeck; fishing is an industry. Dorchester (q.v.) is the county town. Poole and Weymouth are seaports; Swanage and Lyme Regis are watering places. Spots of historic and other interest are Bridport, Sherborne, Shaftsbury, Gillingham and Blandford. The county contains Corfe Castle and many other antiquarian remains, and in modern times is celebrated as the scene of Thomas Hardy's novels. The dialect, in which William Barnes wrote his poems, is preserved. The county is served by the G.W. and S. Ry. It is in the diocese of Salisbury. Pop. (1931) 239,347.

The **Dorset Regiment**, formerly the 39th and 54th foot, is recruited in the county. It was raised in 1702. Its motto is *Primus in Indis*; the depot is at Dorchester.

Dorset Earl of. English title borne by the family of Sackville from 1604 to 1843. There was a Marquess of Dorset before this time, the title being held by the family of Beaufort and then by the Greys.

Thomas Sackville (1536-1608) the 1st earl, was a poet, but is better known as a politician and ambassador in the time of Elizabeth. His descendant, **Charles Sackville** (1638-1706), the 6th earl, was also a poet who took part in public life. His son, **Lionel**, the 7th earl, was made Duke of Dorset in 1720, and there were dukes of Dorset until the main line of the family died out in 1843.

Dortmund Town of Germany. It stands on the River Emscher in Westphalia, 50 m. from Düsseldorf. It is served by a good railway system and is the terminus of a canal to the Ems. Most of the town is modern, but some streets and houses in the older part date from the time when it was a free city and a flourishing member of the Hanseatic League. Dortmund's industries are due to its position on the coal-field. Among them are the manufactures of iron and steel goods, including machinery and railway stock. Its transport trade is also considerable. Pop. 525,837.

Dory (*Zeus faber*). Edible, marine spiny-finned fish also called John Dory. Found in British, Mediterranean and Australian waters, it is olive-brown in colour, with dark-spotted yellowish sides and few or no scales, and is valued for the table.

Dostoevsky **Feodor** **Mikhailovich**. Russian novelist. Born in Moscow, Oct. 30, 1821, he was educated as an engineer, but soon began to write. His first work, translated as *Poor Folk*, was

published in 1846. In 1849 his political activities led to his arrest and he was sent to Siberia where he remained for four years, after which he spent three in the army. The rest of his days were spent in writing and travelling. He died in St. Petersburg, Jan. 28, 1881.

Dostolevsky was the first and one of the greatest of the Russian realists. His works have been translated into English and include *Crime and Punishment*, his masterpiece, the autobiographical *House of the Dead*, *The Idiot*, *A Raw Youth* and *The Brothers Karamazov*. He also began *An Author's Diary*.

Dotterel Bird of the plover family. Though becoming rare in England it still breeds in Scotland. It is about 9 in. long, its plumage being brown with black and white markings. Its eggs, usually four in number, are pear-shaped, of stone colour, and laid in a slight hollow. It is found in mountainous areas and feeds on insects and grubs.

Douai Town of France. It stands on the Scarpe, 20 m. from Lille. The buildings include the churches of S. Peter and Notre Dame. The ancient fortifications are represented by two massive gateways and other remains. During the Great War Douai was occupied by the Germans. Pop. 34,100.

Douai was one of the chief towns of Flanders in the Middle Ages and here the Parliament of Flanders met. It is best known, however, as an educational centre. From 1562 to 1793 it had a university and from 1813 to 1903 a college for the training of Roman Catholic priests for work in England. The translation called the Douai Bible was issued here in 1610.

Douaumont Village of France. It stands on the right bank of the Meuse, 3 m. from Verdun, and was the scene of some terrible fighting between the French and the Germans in 1916. The fort here was taken and retaken several times between Feb. and Oct., the last time by the French.

Double Bass Largest instrument of the string variety. Shaped like its ancestor the bass viol, the double bass, sometimes called contra bass, has four strings and corresponds in pitch to a sixteen foot organ pipe.

Doublet Male close-fitting outer garment. Of two thicknesses it was worn in Europe from the 14th to the 17th century. Originally leather belted, it became carefully blocked and even padded, with fixed or detachable sleeves. In Stuart times it became a sleeveless undergarment, the precursor of the modern waistcoat. Feminine fashions sometimes simulated it.

Doubling Folding or plaiting. It may be the doubled edge of sails or skirts, or in heraldry the ermine lining of mantles. It may also be the doubled course of roofing slates at the eaves, or an extra layer of ship's planking. Another form of doubling is the formation of yarns, cotton or woollen, from single strands, an important operation in the textile industries.

Doubloon Gold coin of Spain. It also circulated in Spanish American states. In the 17th-18th centuries it was worth about 36s. A new type, the Isabel doubloon, representing 100 reals, and worth 20s. 8d., was issued in 1848, but was discontinued after 1868.

Douche Term applied in medical treatment to a jet or column of water directed upon a part of the body. It is used in

rheumatic affections such as lumbago and certain conditions of the joints due to inflammatory exudations, also in internal complaints.

Doughty **Charles Montagu**, English traveller and writer. Born Aug. 19, 1843, the son of a clergyman, he was educated at Cambridge, where he took a science degree. Later he travelled extensively in three continents, Europe, Asia and Africa. His most remarkable journey was begun in 1876 when he made his way through parts of Arabia then quite unknown to Europeans. He wrote an account of this as *Arabia Deserta*, a masterpiece of English style. Doughty wrote *The Dawn in Britain*, *The Cliffs*, *The Clouds* and other volumes of poems. He died at Sissinghurst, Jan. 20, 1926.

Douglas Capital of the Isle of Man and a watering place. It stands on Douglas Bay, on the east side of the island, where two streams fall into the sea, is connected by steamer with Liverpool, Barrow-in-Furness, Belfast, Glasgow and Fleetwood, and is one of the most popular pleasure resorts in the country. On Prospect Hill are the buildings of the government of the island, including the House of Keys. The course for the motor cycle races starts and finishes in the town. Pop. (1931) 20,326. **Douglas Head** is a promontory to the south.

Douglas Village of Lanarkshire. It is 11 m. from Lanark, on the L.M.S. Rly., and is famous for its associations with the great family of Douglas which took its name from here. There are remains of their castle and also of St. Bride's church in which many of them were buried. The word means "dark water."

Douglas Scottish family. It takes its name from Douglas in Lanarkshire, but its chief power was in Galloway, around Castle Douglas. The family became powerful about 1200, or a little later. Sir James Douglas, called the Black Douglas, was one of the most famous fighters of his time. He was one of the associates of Robert Bruce and is the Douglas immortalised by Scott. He was killed fighting in Spain in 1330.

A later Douglas, **Archibald**, was made Earl of Douglas in 1358 and he and his successors were great men in the border fights of these days. One is mentioned in the *Ballad of Chevy Chase*. **Archibald**, the 4th earl, was made a duke of France and was killed at Verneuil in 1424. In Scotland the power of the Douglases became almost equal to that of the kings, so in 1440 **William**, the 6th earl, was put to death. This weakened their position, but **William**, the 8th earl, was a powerful person until he was murdered by King James II. at Stirling in 1452. The great age of the family may be said to have ended when the last earl died, after a long exile, in 1488.

A Douglas became Earl of Angus in 1389, and in 1633 the 11th earl was made **Marquess of Douglas**. In 1703 the 3rd marquess was made a duke and there was a Duke of Douglas until 1761. Another Douglas was made **Marquess of Queensberry** in 1681 and the dukes of Queensberry were Douglases. In addition to the marquess, the family is represented in Scotland to-day by the Duke of Buccleuch, the Duke of Hamilton, who bears the title of Marquess of Douglas, the Earl of Morton and Lord Torphichen, who is the heir general of the house. The Earl of Home is a Douglas in the female line.

Douglas **Stephen Arnold**. American politician. Born in Vermont, April

23, 1813, he was a member of the state legislature of Illinois, 1836-40, and was State Secretary for part of that time. From 1843-47 he was in the House of Representatives at Washington and from 1847-1861 was a member of the Senate. He is chiefly known as the opponent of Lincoln, from whom, in 1858, he won a seat in the Senate. The contest was renewed when both stood for the presidency in 1860. On this occasion Lincoln was the victor. Douglas died in Chicago, June 3, 1861.

Douglas Pine N. American evergreen tree of the cone bearing order (*Pseudotsuga douglasii*). Also called Oregon pine, it forms great forests from British Columbia to Mexico. The most valuable timber tree of the Pacific region, its hard, heavy, durable wood serves for all kinds of constructions, masts, spurs and railway sleepers. Red and yellow fir varieties occur. It grows to a height of 300 ft.

Doukhobors Religious sect. They arose in Russia in the 18th century. Their beliefs are not unlike those of the Quakers. They object to the use of icons or images and put a mystical interpretation on the facts of the Bible. Their refusal to serve as soldiers, another article of their faith, has involved them in persecution. There are small colonies of them in Canada.

Doullens Town of France. It is 17 m. from Arras with a railway station. Its position made it important during the Great War and here, in March, 1918, a conference was held at which Marshal Foch was made Commander of all the Allied armies. There is a British cemetery near the town.

Doulton Name of a brand of ware made at the Doulton Pottery Works, Lambeth. The founder of the firm, Sir Henry Doulton (1820-1897) entered his father's potteries in 1835, and as the result of his experiments introduced the use of a good enamel glaze. Eleven years later, the manufacture of sanitary and drainage ware was started, and in 1870 Doulton turned his attention to the production of art pottery, employing for this purpose a number of artists whose work has become famous. Knighted in 1878, he died Nov. 17, 1897.

Doumer **Paul**. French politician. Born at Aurillac, March 22, 1857, he became a journalist. In 1888 he was elected to the Chamber of Deputies. In 1895-96 he was Minister of Finance, and from 1897 to 1902 was Governor-General of Indo-China. In 1905-06 he was President of the Chamber of Deputies, and in 1912 he was elected to the Senate. In 1917 he was a member of the Poincaré Cabinet and in 1921-22, and again in 1925-26, he was finance minister. In 1927 Doumer was chosen president of the Senate, and in May, 1931, was elected President of the Republic, defeating M. Briand. In May, 1932, he was shot by a foreigner when at a crowded social function, and died a few hours later.

Doumergue **Gaston**. French statesman. Born Aug. 1, 1863, he became a lawyer and entered the public service. Having served abroad he was elected to the Chamber of Deputies in 1893. From 1902-05 he was Minister for the Colonies; from 1906-08 Minister of Commerce, and from 1908-10 Minister of Education. In 1910 he entered the Senate and in 1913-14 was for a short time Prime Minister and Minister for Foreign

Affairs; from 1914-17 he was Minister for the Colonies. In 1923 Doumergue became President of the Senate, and in 1924 he was elected President of the Republic, the first Protestant to hold that position. His term ended in 1931.

Doune Burgh of Perthshire. It is on the Teith, 45 m. from Edinburgh, on the L.M.S. Rly. The chief object of interest is the ruined castle. Having held out for the Jacobites, this was dismantled in 1746. Restoration work has been recently done. Pop. (1931) 822.

Douro River of Spain and Portugal. It rises in Spain, and, having passed Valladolid and Zamora, reaches the frontier. For about 60 m. it forms the boundary between the two countries, after which it crosses Portugal to enter the sea near Oporto. Owing to rapids it is not of great value commercially, although it is used by the Portuguese to some extent. There are many fish in its waters and its length is 485 m. The eldest son of the Duke of Wellington bears the courtesy title of Marquess of Douro.

Dove Name denoting indiscriminately any bird of the pigeon family. In popular usage it generally designates the best-known smallest species, such as the ring dove or wood pigeon, stock dove, rock dove, whence all our domestic pigeons are derived—and the turtle dove.

Dove River of England. It rises on Axe Edge and flows S. and S.E. between the counties of Derby and Stafford. After a course of 45 m. it joins the Trent at Newton Solney.

Dovedale, the pass through which it flows, is a famous beauty spot noted also for its association with Isaac Walton. It has been proposed to make it into a national park.

Dove Flower Central American orchid (*Peristeria elata*). It is a robust plant living parasitically upon others, with a flower stalk upon whose uppermost third cluster fragrant creamy-white flowers with lilac specks at the lip-base. Its resemblance to a dove with expanded wings led the Spaniards to term it the Holy Ghost flower.

Dover Borough, seaport and market town of Kent. It stands on the Strait of Dover, 77 m. from London, and is the chief port for communication with France. It has stations on the S. Rly., and from it steamers go regularly to Boulogne, Calais, Ostend and elsewhere. The chief building is the castle with a Norman keep and here also are some of the oldest buildings in England.

The port has two harbours. One was a naval harbour until the dockyard was closed in 1920. Both have been improved to accommodate large vessels. There are good sands, a promenade and other attractions of a popular watering place.

Dover was one of the Cinque Ports (*q.v.*) and has been an important place from Roman times. Kings and armies have landed here and off the town sea fights have taken place. By the secret Treaty of Dover, 1670, Charles II. agreed to become a Roman Catholic and to help Louis XIV. in return for an annual payment. In the Great War Dover was the headquarters of the patrol responsible for guarding the straits and a base for the troops overseas. Pop. (1931) 41,095.

Dover Strait of. Stretch of water connecting the North Sea and the English Channel. It is 21 m. across from Dover to Calais. The Strait was swum by Capt.

Matthew Webb in 1875 and the feat of "swimming the Channel," achieved several times since the Great War, means swimming the Strait. The proposed Channel Tunnel is planned to go under the Strait.

Dovercourt Seaside resort of Essex. It is part of the Borough of Harwich and is situated on the Stour estuary, 70 m. from London on the L.N.E. Rly. The beach is smooth and sandy, and the attractions include golf courses. Here Captain Fryatt is buried.

Dovey River of Wales. About 30 m. long, it rises on Aran Mawddwy, and flows S.W. into Cardigan Bay. For some distance it forms the boundary between Cardiganshire and Merionethshire. It has a considerable estuary, upon which stands Aberdovey.

Dow Gerard, Dutch painter. Born at Leyden in 1613, he studied painting under Rembrandt and became one of his most famous pupils. His many works, including a number of portraits, are in the great European galleries. Notable are "The Poulterer's Shop," in the National Gallery, London, and "The Dropsical Woman" in the Louvre, Paris. He died in 1675.

Dowager Really a widow with a dower. It is used for the widow of the holder of a title which has passed to another. Thus, the widow of a duke is the dowager duchess, to distinguish her from the wife of the present duke. Of late years the use of the word in this sense has been to some extent dropped for the Christian name which precedes the title, thus Clarice, Countess of Dorking.

Dower In law the amount allowed to a widow out of her husband's estate. By English law a husband can leave whatever he likes to his widow as a dower; by Scottish law the dower is one-third of the real property left by a dead man. The dower house, found on many landed estates, was the residence of the dowager or widow with a dower.

Dowlais District of Merthyr Tydvil. It is 172 m. from London by the G.W. Rly., and there are collieries and iron and steel works in the neighbourhood.

Down County of N. Ireland. In the east of the country, it has a long coastline on the Irish Sea. Strandford Lough penetrates the county and Belfast Lough is to the north. Downpatrick is the county town. Other places are Lisburn, Comber, Dromore, Newry, Banbridge, Dundrum, Newtonards and Bangor. There are a number of watering places on the coast, including Newcastle and Donaghadee, and in the county are some of the suburbs of Belfast. The rivers are the Bann, Lagan and Newry. The soil is fairly fertile, although hilly; in the south are the Mourne Mts. Its area is 357 sq. m. Agriculture is the main industry, but a good deal of fine linen is manufactured. Down is well served with railways, radiating from Belfast, and by canals. Down is one of the dioceses of the Church of Ireland. Pop. (1926) 209,228.

Down Village of Kent. It is 6 m. from Bromley and 2 from Farnborough. Here Charles Darwin lived for many years and his home is now the property of the British Association.

The Irish title of Viscount Downe has been borne by the family of Downay since 1680. The estates are in Yorkshire.

Downham District of London. It is partly in the Borough of

Lewisham and partly in that of Bromley, being 9 m. to the S.E. of the city. Here the London County Council has laid out a housing estate.

William Hayes Fisher, a politician, took the title of Baron Downham in 1918 and the estate was named after him, as in 1919 he was chairman of the London County Council. He was in Parliament in 1885-1906 and again 1910-1918, and in 1917-18 was president of the Local Government Board. He died July 2, 1920.

Downham Market Urban district and market town of Norfolk. It is on the Ouse, 10 m. from King's Lynn, on the L.N.E. Rly. There is a trade in agricultural produce. Pop. (1931) 2463.

Downing Street London street. It is a short street leading from Whitehall and in it are the official residences of the Prime Minister, and the Chancellor of the Exchequer, and the offices of the chief whip of the party. These form three connected houses, Nos. 10, 11 and 12. On the other side of the street is the Foreign Office. The street owes its name to **Sir George Downing**, Secretary to the Treasury, 1667. All the Prime ministers since Sir Robert Walpole have lived here.

Downing College, Cambridge, was founded in 1800, with money left by a grandson of Sir George Downing.

Downpatrick City and county town of Co. Down, N. Ireland. It is 27 m. from Belfast and stands near Strangford Lough, on the Belfast and Co. Down Rly. The chief building is the cathedral. There are some manufactures. S. Patrick is said to have been buried here. Pop. 3200.

Downs Two ranges of chalk hills in S. England. They are called the North and the South Downs, and sometimes sections are called the Hampshire and the Marlborough Downs. The North Downs are in Kent and Surrey, the highest point being Leith Hill. The South Downs are in Kent and Sussex, and between the two ranges is the district called the Weald. The Downs run also into Hampshire, Berkshire and Wiltshire.

The Downs is also the name given to the roadstead off the coast of Kent between Deal and the Goodwin Sands. It is about 8 m. long and 6 wide. There were several fights here between the English and Dutch fleets in the 17th century.

Downside Monastery near Bath. It was established as a house for Benedictines in 1811, having previously been in Shropshire. The house has a fine range of buildings and the monks maintain a school, one of the leading Roman Catholic public schools in England.

Doyle Family of artists. **John Doyle**, born in 1797, was an Irishman who settled in London in 1821. He made a reputation by his caricatures of politicians and others signed H. B. Many of them are in the British Museum. He died Jan. 2, 1868.

His son, **Richard Doyle**, inherited his father's gift. For many years he was a contributor to *Punch* and he designed the cover which was used from 1849 to recent times. He also illustrated books, painted in water colours and wrote for the *Cornhill Magazine*. He resigned from *Punch* in 1850 because it criticised the Roman Catholic Church, and died Dec. 11, 1883.

Doyle **Sir Arthur Conan**. English novelist. Born in Edinburgh, May 22, 1859,

he was educated there and became a doctor. He practised medicine for a time, but soon proved he had a distinct gift for writing. From 1887, when *A Study in Scarlet* appeared, he wrote incessantly and on a variety of subjects, and although he does not stand in the first rank of novelists some of his work is of very high quality indeed.

The chief of many claims to fame is the creation of the detective Sherlock Holmes, whose adventures are related in a number of volumes. His historical novels, notably *The White Company*, *Micah Clarke* and *Rodney Stone*, are among the best in the language. His power of telling a story is well seen in the delightful series dealing with Brigadier Gerard, and in his volumes of short stories. Doyle wrote a popular history of the Boer War, in which he served as a doctor, and one of the Great War. In later life he gave much time to spiritualism, in which he strongly believed. Knighted in 1902, he died July 7, 1930.

Drachenfels Hill of Germany. It overlooks the Rhine, 8 m. from Bonn. Magnificent views are obtained from the top, which can be reached by a railway from Königswinter. It is 1065 ft. high and on it are the ruins of a castle. The name means dragon's rock and the legend is that in a cavern in the hill lived the dragon that was slain by Siegfried.

Drachm Unit of weight. It is one-sixteenth of an ounce avoirdupois, or one-eighth of an ounce in the old apothecaries' weight. Prisms are still compounded and prescriptions made up by apothecaries' weight, except in the British Pharmacopoeia, where avoirdupois weight is used. The word is often abbreviated to *dram*.

Drachma Standard monetary unit (silver coin) used in the Republic of Greece.

Draco Magistrate at Athens. He lived about 600 B.C. and was responsible for putting the laws in writing. These laws were severe, although not more so than others of that age, and since then the word draconian has been used for severity.

Draco is also a Latin word for a dragon. As such it is given to a constellation between the two bears, and to a genus of lizards found in India and thereabouts.

Draft Word used in several senses. One draft is an order to a banker to pay a sum of money to a certain person. Such are used when cheques cannot be employed, in foreign business, for instance. Another draft is a rough copy of a document.

In military speech a draft is a body of soldiers sent to join a unit, perhaps from the depot to a battalion in India. During the American Civil War the word was used for conscription. In 1863 a law gave power to the president to draft all men between 20 and 45 into the army. The riots which followed were called the **Draft Riots**.

Dragon Fabulous monster typical of evil in Christian lore. It was a huge reptilian quadruped breathing fire and probably evolved from vague memories and imaginings of prehistoric saurians. It is chiefly known as the monster killed by S. George.

The dragon is a good deal used in heraldry where it is usually represented with wings. It is one of the national emblems of Wales. It also appears in the heraldry of China and Japan. An old kind of musket was called a dragon.

Dragonet Genus of brilliantly coloured spiny-finned fishes (*callionymus*). They inhabit temperate and tropical waters. The British *C. lyra*, orange-blue with lilac and red markings, was previously called the yellow gurnard. It is smooth skinned, with pointed mouth and upturned eyes, and is the male of the coast dweller formerly called the dusky skulpin.

Dragon Fish Genus of small spiny-finned fishes. Allied to flying gurnards, they inhabit Indian, Chinese and Australian waters. Their broad, flattened bodies, with stiffened tails, are covered with movable bony plates, the long rays of the breast fins, sometimes spinous, resembling wings. They lack both air bladders. The Indian *P. draco* is typical of the species.

Dragon Fly Group of winged insects. Nowadays considered a distinct order (*odonata*), it is of world-wide temperate and tropical distribution, and includes 2200 species. Only 50 are British. Large-headed, and strong-jawed, with two enormous compound eyes and short antennae, it is slender-bodied, with four large, transparent, membranous wings. The eggs are deposited in water. The larva preys on other water organisms, and reaches a nymphal stage of continued activity, instead of becoming a resting pupa, before completing its metamorphosis.

Dragon's Blood Resinous exudation from the scaly fruits of a climbing palm. This is a native of Borneo and Sumatra. The resin is formed into rough, sticks or irregular pieces and when powdered is carmine-red in colour. It is soluble in oils and spirit and is used for colouring varnishes, wood, horn, marble, etc.

Dragon Tree Genus of trees of the lily order. A native of the warmer parts of Africa, Asia and Polynesia, it has long leaves, usually lance-shaped. Its small whitish flowers bear berries. Various species are ornamental foliage plants; some bearing this name belong to the allied genus *cordylus*. The dragon tree (*D. draco*) of the Canary Islands attains great size and age. One, 70 ft. high, at Orotava, Teneriffe, destroyed by a hurricane in 1867, was reputedly 6000 years old. It was then over 42 ft. in girth.

Dragoon To-day a kind of cavalry soldier. The first dragoons were infantrymen, being so called because their weapon was a musket called a dragon. Later they were mounted and were called horse dragoons. They were found in the French and other armies, as well as in the English one.

In the British Army to-day there are dragoons and dragon guards. The dragoons consist of two famous regiments, the **First or Royal Dragoons** and the **Second or Scots Greys**. A third regiment of dragoons, equally famous, the **Royal Inniskillings**, was disbanded after the Great War. There are five regiments of dragon guards, two others having been disbanded. They are the 1st, 2nd, 3rd/6th, 4th/7th and 5th.

Drainage Term used for the draining off of water from land by rivers, canals or other means. Drainage is adopted for the protection of low-lying lands from flooding by encroachments of the sea or river inundations, and marshes or areas liable to be flooded at high tide have been reclaimed in many instances by a system of dykes and drainage. One-third of the area of Holland

represents such reclaimed land (polders) and the canal system of drainage is supplemented by pumps worked by wind, steam and electric power. Considerable areas in the eastern counties of England have been drained, the Bedford Level being the largest, and it has been suggested that part of the Wash could be drained.

Drains Short name for the system by which refuse is carried from a house or other building. In towns the drains are connected with a system maintained by the public authorities; in country districts a cesspool or a septic tank is often used.

Great attention to-day is paid to drains, as evil drains or no drains are a serious menace to health. In every building that is erected they must be approved by the surveyor to the local authority, and kept in good order. The most usual test for defective drains is the smoke test.

Drake Sir Francis. English seaman. Born near Tavistock about 1545, he went to sea as a boy. In 1567 he sailed with his cousin, John Hawkins, to America, and in 1570 he again crossed the Atlantic and attacked Spanish settlements and ships. He repeated the exploit in 1572, when he crossed the Isthmus of Panama. He then passed a period fighting in Ireland. In 1577, with five ships, Drake set out upon a voyage round the world. He was away for three years and lost all his vessels except *The Golden Hind*, but he fulfilled his purpose and in Oct., 1580, sailed into the Thames laden with spoil. The first Englishman to circumnavigate the globe, he was knighted by Elizabeth in 1581. In 1585 he again harried the Spanish settlements in the New World.

In 1587 Drake led an expedition to Cadiz, where he burned many Spanish ships and delayed the proposed invasion of England. In the *Revenge* he took part in defeating the Armada, himself capturing the *Rosario*. In 1589 he led another expedition to the coasts of Spain and Portugal, but this ended in the loss of thousands of English lives from disease. In 1595 Drake left Plymouth on his last voyage. He reached the West Indies where he was taken ill with dysentery and died, Jan. 28, 1596. He was buried at sea. Between his voyages Drake lived in Devonshire. He was elected M.P. for Plymouth and provided that city with a water supply from Dartmoor.

A British cruiser was called the **Drake**. She displaced 14,100 tons and was 520 ft. long. She was sunk by a torpedo, Oct. 2, 1917.

Drakenberg Mountain range in S. Africa. It separates the Cape Province from the Orange Free State and Natal. The highest point is 11,000 ft. and the general height is about 7000 ft. Mnjuba Hill is in this range. The name is sometimes, but wrongly called, Drakensberg; an alternative is Quathlambra.

Drama Acted story. Dramatic art emulates real or fictitious personalities. They represent their gesture, dumb or spoken, and by dress and scenic accessories aid the illusion.

Represented in Attica on travelling wagons in the 6th century, B.C., the classical drama quickly established the unities of time, space and action which have governed all later developments. The story's unfolding, from opening to climax, should be inevitable, or at least probable. Intervening subsidiary incidents should never distract attention from

the main action. Sometimes utilising national myths and legends, historic events or outstanding persons, the dramatist's skill, working within the literary conventions of his age, lies in creating characters whose delineation makes an individual appeal.

The early church discountenanced the travelling companies of masked comedians who perpetuated classical Roman models. Mystery and morality plays, which provided popular instruction and diversion, preluded the revival of the secular drama under Renaissance influences and the creative outburst typified by Shakespeare, Lope de Vega, Corneille and Racine. This modern drama encountered new influences in Ibsen's realism and Maeterlinck's symbolism.

Drama includes tragedy, comedy, melodrama and farce. It may be lyrical, expressed in prose or verse, associated with music in opera, or speechless as in pantomime.

Draper (Fr. *drapier*). Trader in textile and other goods. The name was originally given to a maker of cloth and was then extended to linen. The name now applies to sellers of all kinds of silks, woollens, cottons and other manufactured goods. The **Drapers' Company**, whose hall is in Throgmorton Street, is the third of the twelve great livery companies of London. Its great wealth has done much for education, especially at Bancroft's School, Woodford, and the People's Palace, Mile End Road, London, E. *The Drapers' Record*, published weekly, is the chief trade journal.

Drapier Name taken by Jonathan Swift when he wrote *The Drapier Letters* in 1724. A certain William Wood had been given a monopoly for supplying Ireland with copper coins. This privilege was disliked in Ireland and Swift denounced the transaction and helped materially to bring about the cancellation of the contract.

Draughts Indoor game. It is played with 24 pieces, or draughts-men, on a board divided into squares. The pieces are twelve black and twelve white, and the squares on the board are likewise black and white alternately. There are 61 squares and either the black or the white ones can be used. 32 therefore are used and on 24 of them the players place their pieces, leaving eight blank squares between them.

The object of the game is to move the pieces forward and to capture the enemy pieces, which can be done by passing over one to a vacant square behind it. When a piece has reached the back row of enemy country it becomes a king and can move either backwards or forwards. If a piece is not taken when it is vulnerable, the piece that fails to take it is huffed, or removed from the board. In the United States draughts is called checkers.

Draughtsman One who draws plans and designs for buildings, machinery and the like. Draughtsmanship is a branch of drawing and is taught at schools of art and technical colleges. Draughtsmen are employed by the Admiralty on warship design, and by engineering firms of all kinds, as well as by architects. Draughtsmen are also employed in some of the textile industries and to draw maps; in the latter case they are also called cartographers.

Drave River of Europe. It rises in the Tyrol, flows through Austria into Yugoslavia and when near Belgrade it joins

the Danube. It is navigable to where it is joined by the Mur, and by small craft to Villach. Its length is 150 in.

Dravidian Name denoting collectively non-Aryan peoples in S. India and Ceylon. Their speech belongs to a distinctive language family of agglutinative form. Numbering nearly 60,000,000, they are dark-skinned, curly-haired, long-headed, broad-nosed and thick-lipped. In N. India Dravidian has been more or less displaced by Aryan forms of speech, but in Baluchistan olive-skinned, brown-haired Eranian Brahmins speak a Dravidian dialect. The principal languages are Telugu, Tamil, Malayalam and Kanarese. A distinctive S. Indian style of architecture is often called Dravidian.

Drawback Repayment of money paid on customs or excise duties. It is usually given in cases where goods, having been imported and paid the necessary duties, are then exported.

Drayton Michael. English poet. Born in Warwickshire in 1563, his early life is rather obscure. He was associated with Shakespeare and wrote a good deal. In 1593 appeared his *Idea, the Shepherd's Garland* and in 1598 *England's Heroical Epistles*. His longest work is *Polyolbion*, a description of England, 30,000 lines in length, and his best is contained in *The Ballad of Agincourt* and his sonnets. His *Nymphidia* or *The Court of Fairy* is delightful, and his last work, *The Muses' Elysium*, deserves mention. He died Dec. 23, 1631, and is buried in Westminster Abbey.

Dreadnought British warship. There have been several warships of this name. One fought against the Spanish Armada and another at Trafalgar. The latter was long used as an hospital, being moored off Greenwich. The name is perpetuated in the Dreadnought Hospital there.

The ninth Dreadnought was an entirely new type of battleship and gave her name to a large class. She was laid down in 1906 and was armed with ten 12 in. guns, earlier ships having only four. Her only other guns were small ones for dealing with torpedo boats. There were no guns of intermediate size as there had been in earlier warships. The Dreadnought was 526 ft. long and displaced 17,900 tons. Her ten guns were so arranged that eight of them could fire on either side. The idea of the Dreadnought was taken up by other navies and their strength was calculated in Dreadnoughts. After a time ships carrying still larger guns were built. These are classed as super-Dreadnoughts.

Dream Manifestation of the unconscious mind during sleep. Dreams normally attend the state between sleeping and waking when the imaginative faculty is regaining its conscious power after submergence in the unconsciousness of normal sleep. They concern material already present in the mind, and never the inconceivable, being interpreted by Freud as the fulfilment of unsatisfied desires. The images presented, being uncoordinated, lack the coherence of reverie, or day-dream.

Dredging Process of removing mud or other material under water for purposes of deepening a river, canal or harbour, or for the reclamation of swampy ground. Dredging is used also in mining for the removal of alluvial deposits containing gold, platinum, tin and other valuable ores, and for building purposes in the excavation of

sand, gravel and clay. The machines used are known as **dredgers** and of these there are many types. The **bucket dredger** is a common type and consists of a series of buckets linked together to form a ladder, at the top of which is the receiving hopper.

Dreiser Theodore. American writer. Born Aug. 27, 1871, in Indiana, he was educated there. In 1892 he joined the staff of a newspaper at St. Louis, but soon became an editor in New York. In 1907 he was made editor-in-chief of the *Butterick Publications*. In 1900 Dreiser published *Sister Carrie* and then followed novels, short stories and essays in quick succession. These include *The Financier*, *A Hoosier Holiday*, *Twelve Men, Accented and Declaimed*, and *A Gallery of Women*. His best-known work is *An American Tragedy*. In *A Book about Myself and Dawn* he relates his own life story.

Dresden City of Germany and the capital of the republic of Saxony. It stands on the Elbe, 110 m. from Berlin. Dresden is chiefly famous as an art centre. Its unrivalled collection of pictures, including the *Sistine Madonna*, is in the museum, part of a huge building called the *Zwinger*. The palace, in which the kings of Saxony lived until 1918, also contains some wonderful treasures. There is a magnificent theatre and also an opera house. The Altmark is the centre of the old town. Noble bridges cross the Elbe and there are promenades along its banks.

Dresden is a great industrial town. It is an important railway junction with a great central railway station and there is a good deal of trade along the river. It is an important banking and distributing centre, and there are a number of manufactures. Dresden became the capital of Saxony in 1485 and in the 16th century it was rebuilt. It has a broadcasting station, (319 M.; 0.25 kW.). Pop. 619,000.

Dresden chinaware was first made in the palace at Dresden in 1709. It is noted for the delicacy of its colouring and its most valuable pieces are small figures of shepherdesses and the mark is a crown and two crossed swords. The china has been made since 1710 at Meissen.

The **Battle of Dresden** was fought Aug. 26 and 27, 1813. In it Napoleon defeated the Austrians, Russians and Prussians who were attacking the city, then in the possession of the French. The *Dresden*, a German light cruiser, was sunk by British cruisers near Juan Fernandez, March 14, 1915.

Dressing Materials used to protect a wound or injury. These are made of cotton wool, lint and other material usually treated with iodoform, boric acid or another chemical to prevent germ infection. In war, wounds are first treated at dressing stations which are established as near the fighting zone as possible.

Other forms of dressing are manure applied to land, and the process used to prepare ores before the metal is extracted from them. Another kind of dressing is the preparation of birds, etc., for the table.

Dressing Table Table for toilet use. As a distinct piece of furniture it dates from about 1700, before which time a mirror placed on a chest of drawers served the purpose. Early in the 18th century some beautiful pieces were made in walnut and other woods, and these have been extensively copied. Later they were

designed by Sheraton & Chippendale. In some cases a dressing table and secretaire were combined.

Dreyfus Alfred. French soldier. Born in Alsace in Oct., 1859, the son of a Jewish manufacturer at Mulhausen, he entered the army. In 1891, then a captain on the general staff, he was charged with selling documents of value to the German Government. He was tried by court-martial, found guilty and sent into exile on Devil's Island, off the coast of Guiana. Later, he was re-tried by court-martial at Rennes, and sentenced to prison for ten years. He was, however, pardoned by the president and in 1916 a higher court declared him innocent. He was restored to the army and later made an officer of the Legion of Honour.

Driffeld Market town and urban district of Yorkshire (E.R.). It is 20 m. from Hull on the L.N.E. Ry, and is an agricultural centre. It is connected by canal with Hull. Pop. (1931) 5916.

Driffeld is called Great Driffeld to distinguish it from the neighbouring village of Little Driffeld.

Drift In geology term applied to the deposits of loose material forming superficial beds of varying thickness. Found in Northern Europe, Great Britain and North America, these beds are the result of glacial action and consist of sands, gravels and clays with scattered ice-borne boulders. The pebbles and rock fragments and also the underlying rocks are scratched and polished by the movements of ancient glaciers dating from the earlier part of the Quaternary period.

Drifter Small vessel engaged in fishing with the aid of drift nets. Normally about 100 ft. long, they are much used in the herring fisheries. During the Great War hundreds of them were engaged in patrolling the narrow seas, maintaining barrages and netting channels for submarines. On the Dover Patrol 256 drifters and trawlers did constant duty.

Drift nets are fastened to drifters and moved through the waters to catch herring, mackerel and other fish that are found in shoals. Cork keeps them in position at the top and weights at the bottom. Some are 120 yds. long.

Drill Corruption of drilling, a stout twilled fabric of cotton or linen used for suiting in tropical climates. It is also used for summer clothing for little boys, for corset making and various other purposes. Khaki drill is used for army wear in hot countries.

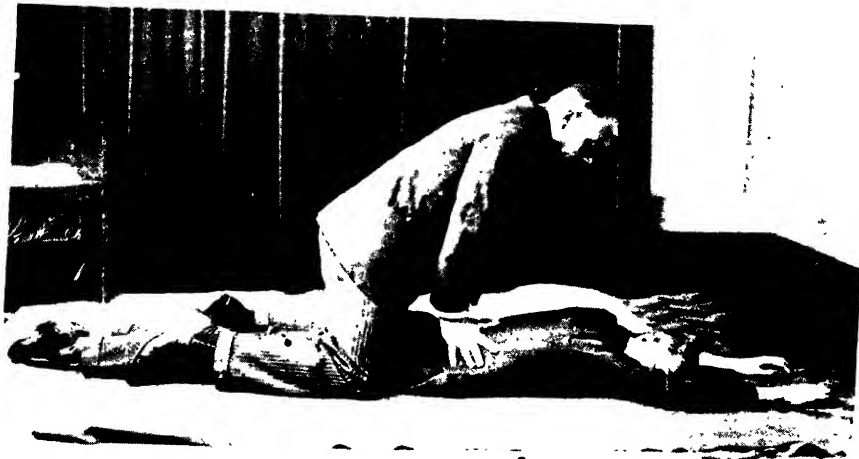
Drill Exercise to encourage discipline and to maintain health. It began with soldiers at a very early date, and by it they were taught to move together at the word of command and in general to act as a body of trained men. In all armies recruits go through a period of drill, and drilling is a recognised part of naval and military routine. There is a regular system of drill for the British Army and there are text books giving details of the various movements.

From armies drill was carried into schools and boys were drilled, usually by retired soldiers. Later it spread to schools for girls. As education became wider drill became merged into physical exercises. Swedish drill, as it is called, is a system of physical exercises which has attained much popularity.

Drill Tool used for boring holes in metal or other substances. It is rotated rapidly by hand or machinery. The ordinary



ARTIFICIAL RESPIRATION—SCHAFER METHOD—I.
Showing the position of the patient—with his face downward and turned to one side and arms extended—and the first-aid-er kneeling across his body with hands flat over the lowest ribs.



ARTIFICIAL RESPIRATION—SCHAFER METHOD—II.
The weight of the first-aid-er's body is thrown slowly and gradually on to his hands, then his body is raised slowly, removing the pressure without moving his hands. The movements are repeated twelve times a minute without pause.

form of drill consists of a short, highly tempered steel rod with specially shaped cutting facets, and is used for boring either by percussion or by constant pressure during rotation. Rock drills are used for making holes for the insertion of explosives. For sinking artesian wells, oil wells, etc., a tubular diamond drill is employed.

Drina River of Yugoslavia. It rises in the mountains of Montenegro and flows through that country until it joins the Save, about 60 m. to the west of Belgrade. It is 160 m. long.

Drinkwater John. English writer. Born, June 1, 1882, the son of an actor, he became a clerk. He soon began to write poetry and his first volume was issued in 1908. He was the promoter, and, for a time, manager of the Repertory Theatre, Birmingham, after which he settled down to a literary life. In addition to poetry, Drinkwater has written essays and criticisms. He is best known, however, for his plays, *Abraham Lincoln*, *Oliver Cromwell*, *Mary Stuart* and *Robert E. Lee*. In 1928 he published a biography of Charles James Fox and in 1930 a book on Pepys.

Dripstone Term used for the projecting moulding over an arch or doorway. It is also used for the stalagmite or calcareous deposit formed on the floor of caverns.

Driver Samuel Rolles. English divine and scholar. Born at Southampton, Oct. 2, 1846, he was educated at Winchester and New College, Oxford. His life was passed in Oxford, first as tutor at New College and then as Professor of Hebrew and canon of Christ Church. He was a member of the company that revised the Old Testament. Driver was a great Hebrew scholar and one of the leading exponents of the higher criticism of the Bible. On those subjects he wrote much, a notable book being *The Introduction to the Literature of the Old Testament*. He died Feb. 26, 1914.

Driving Guiding or controlling a vehicle on the road. At one time it referred almost solely to the guidance of horses.

Another form of driving is controlling a motor car. Before doing this it is necessary to take out a driving licence which costs 5s. a year. By the Roads Act of 1930 the Ministry of Transport has power to make prospective drivers pass certain tests.

In London drivers of taxicabs and coaches must pass an examination before they can obtain a licence to drive. This includes a knowledge of London, its streets and principal buildings, as well as the ability to drive. In Great Britain a driver always keeps to the left of the road; in the United States and in France he keeps to the right. Other vehicles should be passed on the right.

Drogheda Borough, seaport and market town of Co. Louth, Irish Free State. It stands on the Boyne, 4 m. from the sea and 32 from Dublin, on the G.N. of I. Rly. St. Lawrence Gate is a massive relic of the city's fortifications and there are ruins of two abbeys. There is a good harbour, and considerable trade in cattle, etc., passes through the port. It is also a fishing centre.

The town is notable for its capture by Cromwell in 1649 when he put its garrison to the sword; and its surrender to William III. the day following the Battle of the Boyne. For long it was one of the most important

places in the country and the residence of the archbishops of Armagh. Pop. 12,700.

The title of **Earl of Drogheda** has been held by the family of Moore since 1661. The earl's seat is Moore Abbey, Co. Kildare. His eldest son is called Viscount Moore.

Droitwich Borough, watering place and market town of Worcestershire. It is 6 m. from Worcester and 126 from London and is reached by the G.W. and L.M.S. Rlys. A small river, the Salwarpe, flows through the town which is linked by canal with the Severn. Droitwich is chiefly famous for its brine baths for rheumatism and kindred complaints. Pop. (1931) 4553.

Dromedary Name applied to racing breeds of camel, as distinguished from baggage animals. They are thoroughbreds expressly raised for riding purposes, and differ from the heavier breeds as race horses do from dray horses. They are mostly of the one-humped Arabian species, but two-humped Bactrian camels also have breeds of superior speed. See CAMEL.

Dromore Urban district and market town of Co. Louth, Irish Free State. It was once the seat of a bishop, but the diocese is now united with Down and Connor. Linen is made here. Pop. 2460.

Drone Name for the male of the honey bee. In size it is intermediate between the workers and the queen bee. It does not work and is stingless. At the beginning of autumn the workers turn out all the drones from the hive.

Dronfield Urban district of Derbyshire. It is 6 m. from Chesterfield, on the L.M.S. Rly. The chief industry is coal mining. Pop. (1931) 4520.

Dropmore Residence in Buckinghamshire. It is 4 m. from Maidenhead, its station being Bourne End, on the G.W. Rly. It is famous for its gardens which were laid out by Lord Grenville. Later the estate passed to the Fortescue family. *The Dropmore Papers*, which have been published, deal with events of Grenville's day.

Dropsy Morbid accumulation of watery fluid beneath the skin or in body cavities. It arises from weakening of the walls of the minute blood vessels, excessive blood pressure in the veins, or a too watery consistency of the blood. Beneath the skin it is called *oedema* when localised and *anasarca* when widespread. In the abdomen it is *ascites*. In the head *hydrocephalus*. In kidney affections it occurs after rest; in heart disease after exertion. Treatment should attack the cause. In severe accumulations tapping may be required.

Dropwort Perennial herb (*Spiraea filipendula*) of the rose order. It is a native of Europe, N. Asia and N. Africa and has smooth leaves and an erect stem, with panicles of small flowers, white or rosy outside. These distinguish it from the taller willow-leaved dropwort (*S. salicifolia*), a favourite cultivated shrub.

The water dropwort, (*Oenanthe crocata*), is a marsh growing umbelliferous herb, resembling celery, but is poisonous.

Drought Condition of dryness of an area due to lack of rainfall, insufficient irrigation, or other cause. Where this condition is of a permanent character, deserts occur, such as the Sahara in Africa.

and the Gobi in Asia, although many such areas were formerly fertile tracts. Australia is subject to periodical drought, the crops suffering in consequence, but this is being overcome by the sinking of artesian wells, the barrage system of conserving water, and irrigation.

Drowning Submersion in water or other liquid. Death from asphyxia follows a stoppage of the air supply, which is sometimes accelerated by heart failure from shock or syncope. The face is pale or slightly livid, with fine froth about the mouth and nostrils.

The Royal Life Saving Society promulgates approved methods for release, rescue and resuscitation by artificial respiration. The Royal Humane Society awards medals to persons who rescue others from drowning.

Treatment :—Artificial respiration should be tried perseveringly in all cases of apparent drowning, as it is frequently successful even after prolonged immersion. Send for a doctor and proceed with artificial respiration at once as follows :

Lay the patient face downwards with arms extended and face turned to one side ; kneel across his body with your hands flat over the lowest ribs, then throw the weight of your body slowly, removing the pressure without removing your hand. Repeat the movement twelve times a minute without pause. In severe cases two hours' work or more may be necessary.

During this procedure an assistant should rub the lower limbs vigorously towards the heart to help to restore circulation, and as soon as the patient begins to breathe again he must be kept warm with coverings and hot water bottles.

Droylsden Urban district of Lancashire. It is 5 m. from Manchester, on the L.M.S. Rly. It is also connected by canal with Manchester. The industries are associated with the cotton trade. There are also chemical works. Pop. 14,250.

Drug Substance of organic or inorganic origin used in medicine on account of some curative properties it possesses. Many drugs are derived from plants and may represent the entire dried plant ; others the dried leaves, roots, bark, flowers or seeds. Examples of these are chiretta (plant), senna (leaves), rhubarb (root), cinchona (bark), camomile (flowers), nux vomica (seeds). Many extractives, alkaloids and oils from plants are used as drugs, such as cascara, croton oil, strychnine, morphia, etc. Inorganic drugs are represented by iodine and compounds of arsenic, lead, zinc and other metals, while a large number of synthetic drugs are in common use.

In Great Britain certain drugs, such as cocaine and others classed as dangerous, can only be sold under strict supervision. Acts passed in 1920 and 1923 aimed at controlling the trade in these drugs and the Home Office has an inspector to watch it. For dealing in these drugs without authority heavy fines and imprisonment can be imposed.

Druggist Term applied to one who sells drugs. As, however, such a person must be a duly registered pharmaceutical chemist, the term *chemist* and *druggist* is generally used. Only those persons who have passed the examinations of the Pharmaceutical Society are entitled to be registered. Stringent regulations are made with regard to the sale of poisonous drugs. They must be labelled poison and the date

and particulars of the sale must be entered in a special register.

Druid Priest of the Celts of Gaul, Britain and Ireland. The chief Druid was elected by a majority of votes from the body of priests and retained his office for life. The ordinary people were completely under the control of the Druids, who looked after their morals and religion and acted as judges. The oak was regarded by them as the supreme god and oak groves were their places of worship, where they offered human sacrifice.

One of the largest of the friendly societies is known as the **Ancient Order of Druids**. It has many members in the United States as well as in Great Britain.

Drum Percussion instrument of music. There are several kinds. One is a single skin stretched on a frame open at the bottom e.g., the tambourine. Another consists of two skins enclosing a cylinder e.g., the side drum. A third is a single skin stretched on a closed frame e.g., tympani or kettle drums.

Kettle drums are hemispheres of copper or brass, over which the head of parchment skin is stretched and secured by screws, the tightening or loosening of which raises or lowers the pitch of the sound. Kettle drums alone emit a definite musical note, other drums merely a noise.

Drumclog Moorland hamlet in Lanarkshire. It is about 2½ m. from Loudon Hill on the Ayrshire border. Here, on Sunday, June 1st, 1679, a small band of Covenanters gained a victory over Viscount Dundee (Graham of Claverhouse) and his troops.

Drumlanrig Castle in Dumfriesshire, built about 1700. A seat of the Duke of Buccleuch, it stands on the Nith, 17 m. from Dumfries.

Drummond Scottish family. It is now represented by the Earl of Ancaster who owns Drummond Castle, in Perthshire. It is famous for its gardens.

One member of the Drummond family founded, in 1712, the bank now at 49 Charing Cross Road, London, still known as Drummonds. In this Henry Drummond (1786-1863) was a partner. He was an M.P. for many years, but is best known as an Irvingite. He built the Catholic Apostolic Church at Albury, Surrey. His daughter married the Duke of Northumberland and inherited Albury Park. He died Feb. 20, 1860. The bank is now a branch of the Royal Bank of Scotland.

Drummond Henry. Scottish seignist. Born at Stirling, Aug. 17, 1851, he died March 11, 1897. He was educated at Edinburgh and Tübingen where he studied science. Trained for the ministry at New College, Edinburgh, he abandoned that career, not, however, on grounds of faith, for he was associated with the evangelistic work of Moody and Sankey. In 1877 he was made lecturer in natural science in the Free Church College, Glasgow, and in 1881 he became professor. While there he wrote *Natural Law in the Spiritual World*, an attempt to reconcile science and religion, which had an extraordinary success and made its author known. It was followed by *The Ascent of Man*. Meanwhile Drummond had travelled much in Africa, Asia and America, which led to the writing of *Tropical Africa* and other books. His addresses on religion in London and elsewhere, notably *The Greatest Thing in the World*, were very popular.

Drummond Sir James Eric. British diplomatist. Second son of the Earl of Perth, he was born Aug. 17, 1876. Educated at Eton, he entered the diplomatic service in 1900. In 1916 he was knighted and in 1919 he was appointed the first secretary general of the League of Nations.

Drummond William. Scottish poet, thorned. Born at Hawthornden, near Edinburgh, Dec. 13, 1585, he studied law in Edinburgh and Paris. His life, however, was spent on his estate at Hawthornden, where he wrote a number of poems, described as "amorous, funeral, divine, pastoral, in sonnets, songs, sextains, madrigals." In prose he wrote *A Cypress Grove*. Among his friends were Ben Jonson and Montrose. A staunch royalist, he died Dec. 4, 1649.

Drummondville Town of Quebec, Canada, on the St. Francis River, 62 m. from Montreal. Pop. 2850.

Drunkennes Condition of being intoxicated. In English law, merely to be drunk is not an offence. It is, however, an offence to be drunk and disorderly, or to be drunk on a highway or in a public place, which includes licensed premises. The usual penalty is a small fine or imprisonment. It is also an offence, for which the penalties are heavier, to be drunk while in charge of a motor car or other vehicle, or while in possession of loaded firearms. Drunkennes is not a defence to a criminal charge, save in exceptional cases.

Drury Edward Alfred Briscoe. English sculptor. Born in London, he went to school at Oxford and then studied art. Later he studied at South Kensington and in Paris and in 1885 exhibited "The Triumph of Silenus." During the next 40 years he turned out an enormous amount of work, including decorative pieces, statues and war memorials, some being in bronze. In 1913 he was elected R.A., having been an A.R.A. since 1900.

Drury Lane Thoroughfare of London. It extends from Aldwych to Broad St., St. Giles', and High Holborn. It is called after Drury Place, a 15th century mansion of the Drury family. In this house Essex planned the rebellion of 1600 and on its site, in 1805, Astley built the Olympia Pavilion.

Drury Lane, with its theatre, has many historic connections. From here a serving man first gave notice of the outbreak of the plague in 1665. Nell Gwynn was born in Drury Court, and plied her trade by Drury Lane Theatre. Lamb, Donne, Campbell, Elliston all frequented the district which, in the 18th century, sank into ill-repute.

The theatre, one of the most famous in London, dates from 1661. In 1672, and again in 1809, it was burned down. The present building was opened in 1812, and famous for the annual pantomimes held here under the management of Sir Augustus Harris and Arthur Collins. In 1917 it was used by Sir Thomas Beecham for opera.

Druses Syrian people professing an esoteric unitarianism. Numbering 100,000, more or less, they inhabit three isolated regions: Transjordan, Jebel Hanran or Jebel Druz; S. Lebanon, where Maronite rivals outnumber them; and Anti-Lebanon and Hermon. They hold that God appeared in successive incarnations culminating in the sixth Fatimite

caliph, Hakim (996-1021), whose claims were advocated by one, Durazi, whence their name.

Drusilla Livia. Roman lady. The wife of Tiberius Claudius Nero, by him she had a son, Tiberius, the future emperor and another son, Nero Claudius Drusus. She then became the wife of Augustus, who made her husband divorce her. Their union was childless, but Drusilla retained his affection until his death. For some time after Tiberius became emperor, she had very great influence, but they soon quarrelled. She died in A.D. 29.

Drusus Nero Claudius. Roman soldier. He was a son of Drusilla by her first husband. As a general he won successes in Germany in the reign of his stepfather, Augustus. He was the father of the Emperor Claudius.

Earlier bearers of this name were two men called Marcus Livius Drusus. The father was tribune in 122 B.C. and the son in 91 B.C. The Emperor Tiberius had a son named Drusus.

Dryad Nymph of Greek mythology. They were tutelary minor deities of trees in which they lived, perishing at their death or destruction.

Dryburgh Ruined abbey of Scotland. It is in Berwickshire on the Tweed, 4 m. from Melrose. It was destroyed in the 16th century, but some beautiful ruins remain, including an aisle of the church in which Sir Walter Scott, his son-in-law Lockhart and Earl Haig are buried. The ruins are national property.

Dryden John. English poet. Born at Aldwinkle, Northamptonshire, Aug. 9, 1631, he was educated at Westminster School and Trinity College, Cambridge. He began his literary career by writing plays, but was more successful with his poems. The first of these appeared in 1659 and for the rest of his days Dryden was busy with his pen. Unlike many other writers, he was in comfortable circumstances and his private life, mainly passed in London, was uneventful. In 1670 he was appointed poet laureate, but he lost that position in 1688. He married the elder daughter of the Earl of Berkshire and before his death became a Roman Catholic. He died May 1, 1700, and was buried in Westminster Abbey.

Dryden's plays are nearly all forgotten, *Marriage à la Mode* and *All for Love* being, perhaps, exceptions, but it is otherwise with his poems. The chief of these are his satires, notably *Absalom and Achitophel*, an attack on Shaftesbury. Other poems are *Annus Mirabilis*, written on the year 1660; *The Hind and the Panther*, written to defend the Church of Rome; *The Ode for St. Cecilia's Day* and *Alexander's Feast*. He translated Virgil and Juvenal. In his own line, that of a satirist in poetry, Dryden is unrivalled.

Dry Farming Method of farming adopted in some parts of the United States, South Africa and other countries where the rainfall is inadequate. It consists essentially of the conservation of rain water in the ground by tillage, thus keeping the soil loose and thereby checking evaporation. Part of the land may be in cultivation, while the rest is kept in a loose condition to retain moisture for the following year's crop. This method is adopted for growing hard or macaroni wheats in America.

Dry-Point Method of engraving on metal. It is allied to etching.

and used for reproduction of designs or drawings. As in line engraving the lines are cut into the copper by means of a pointed steel tool without the aid of an acid as in etching, where the design is scratched through the superficial film and hollowed out by chemical action. The burr, or raised edge, of metal, formed by the engraving tool, gives the soft effect so characteristic of dry point engravings.

Dryptosaur Genus of extinct land reptiles of the dinosaurian order (*dryptosaurus* or *laelaps*). A sharp-toothed, carnivorous creature, it was strong, active, and predaceous, walking on its hind legs like a kangaroo. Closely allied to, and perhaps identical with, English megalosaurs, it inhabited New Jersey, Montana and other N. American regions in Cretaceous times. It was about 20 ft. long.

Dry Rot Condition of decay in timber. It is due to the attacks of fungi causing the wood to become a dry brittle mass. The commonest fungus causing dry rot is *merulius lacrymans*, which attacks deal timbers in damp houses forging white felted masses spreading over boards, beams, and even masonry, and giving rise to a peculiar and disagreeable odour. To prevent dry rot occurring good ventilation and the use of well-seasoned timber is necessary.

Drysalter One who deals in preserved or salted meats, sauces, pickles, etc. He also deals in heavy chemicals, such as sulphur, soda, salt, borax, salammopiac and commercial acids; crude drugs, such as medicinal salts, senna, rhubarb, etc., gums and resins including shellac, gum arabic, mastic and turpentine; oils such as the various essential oils, linseed, rape and cotton seed oils, paraffin, etc.

Duala Town of French Cameroons. The chief seaport of the colony, it stands on the Cameroons River, about 18 m. from its mouth. It consists of a European quarter, a native quarter and the port quarter. It is an important railway junction and has a large export trade. Duala was captured from Germany by a British and French force in Sept., 1911.

Dualism System of philosophy that seeks to explain the world by the assumption that there are in it two independent and absolute elements. The dualist may believe in the entire separation of spirit and matter, or in permanent opposition of good and evil. Dualism is opposed to both idealism and materialism. The philosophy of Benjamin Kidd is an example of dualism.

Dual Control is the control of a country's affairs by two outside powers. For some years after 1882 Egypt was under the dual control of Britain and France.

Du Barry Marie Jeanne Bécu, French adventuress. Born Aug. 19, 1746, she married Jean, Comte du Barry, to act as his gambling decoy, and in 1769 became mistress of Louis XV. She was banished in 1774, and guillotined Dec. 7, 1793.

Dual Monarchy Term used for the Empire of Austria-Hungary during the period 1867-1919.

Dubawnt River and lake of Canada. of Saskatchewan and flows mainly north until it falls into Chesterfield Inlet on Hudson Bay. It passes through the lake which covers about 1650 sq. m. The chief tributary is the Thelon. Its length is about 600 miles.

Dublin County of the Irish Free State. It is in the province of Leinster and has a coastline of 72 m. on the Irish Sea, covers 354 sq. m. and is served by the G.S. and G.N. of I. Rlys. Dublin is the chief town. Other places are Balbriggan, Skerries, Kingstown (Dun Laoghaire) and Howth. The county includes Lambay and other islands. The soil is fertile although there are mountains in the south.

Dublin Bay is an opening of the Irish Sea. It extends from Howth to Kingstown and the Liffey flows into it.

Dublin Capital and seaport of the Irish Free State. It stands at the mouth of the Liffey on Dublin Bay and is 61 m. from Holyhead and 6 from Kingstown (now known as Dun Laoghaire and pronounced as though written Dunleary) its outport.

Dublin has a harbour along the river and a considerable trade with British ports in cattle and other commodities. The chief industry is the manufacture of stout but there are many others, including biscuits and whisky. It is also a banking and distributing centre and the headquarters of the G. S. Rlys. The G.N. (Ireland) Rly. also serves the city, which is connected with the interior by the Grand and Royal Canals.

The buildings include the castle, long the residence of the lord lieutenant, the mansion house, the art galleries, the national museum, the city hall, the fine cathedral of S. Patrick and Christ Church. The Four Courts is where the courts of law sit; the meeting place of the old Irish Parliament on College Green is now occupied by the Bank of Ireland. Charleville House, a beautiful specimen of 18th century architecture, has been bought for an art gallery.

Phoenix Park is a magnificent open space and contains the zoological garden. O'Connell St., formerly Sackville St., is the chief thoroughfare and O'Connell Bridge one of the many bridges across the Liffey. Butt Bridge was opened in 1931. A circular road runs round the city. At Ball's Bridge the annual horse show is held.

Dublin is also an educational, literary, and artistic centre. In it are the historic university called Trinity College, with fine buildings on College Green, and University College belonging to the newer national university. Here are the headquarters of the Royal Irish Academy and the Royal Dublin Society. The Abbey Theatre is notable. It has a broadcasting station (413 Mx 1.2 kW.). Pop. 405,126.

The Royal Dublin Fusiliers was the name of a regiment of the British Army. It was formed in 1881 by a union of the 101st and 102nd regiments of the line and was disbanded in 1922. It had a brilliant record of service in South Africa and the Great War.

Dubois Guillaume. French cardinal and statesman. Born Sept. 6, 1656, the son of an apothecary, he became a monk. Having gone to Paris, he was selected as tutor to Philip, afterwards the Regent Orleans, over whom he obtained great influence. He became the secretary to the Duke, who on becoming regent made Dubois his chief adviser. For eight years he was responsible for the affairs of France. He pursued a policy of peace, badly needed after the exhausting wars of Louis XIV., and, forsaking the traditional friendship with Spain, made an alliance with Britain and Holland. Having been elected Archbishop of Cambrai, he was created a cardinal in 1721. He died Aug. 10, 1723.

Ducat Mediaeval coin, generally of gold. First minted about 1140 by Roger II, of Sicily for his duchy, it was therefore called *ducatus*. Adopted by Florence in 1252, and Venice in 1283, which afterwards called it the sequin, it was issued in other states and survived. In Austria-Hungary down to 1914. George I. and III. issued Hanoverian ducats.

Duck Aquatic bird of the family *Anatidae*. It includes all birds of that family other than swans and geese. The male is called the drake, and in one species the mallard. There are 40 genera and 160 species of freshwater ducks found all over the world. All British domesticated breeds, including the Aylesbury, are descended from the common wild duck. Flat-billed and short-legged, usually with three front toes completely webbed, they include gadwall, shovellers, widgeons, pintails, sheldrakes, teal and mandarin ducks. Sea ducks or diving ducks include scaups, pochards, canvas-backed and eider ducks. The whistling teal are tree ducks.

Duck shooting is practised, especially in the East Anglian Broads and the inlets of the east coast of England, either from punts with fixed or hand-carried guns, or afoot from the sides of streams, sometimes with decoys.

Duckbill Egg-laying mammal (*Ornithorhynchus anatinus*). Peculiar to Australia and Tasmania, it is also called the duck-billed platypus. With toothless, horny, duck-like beak, inconspicuous eyes and glossy dark-brown fur, it burrows in river banks and stores its food, which consists of insects, molluscs and worms, in the pouches of its cheeks. The eggs have white flexible shells.

Ducking Stool Punitive instrument for the public correction of scolds. The stool was fastened in a chair so fixed to a beam that it could be projected over water and raised and lowered at will. The ducking was proportionate to the scold's shrewishness. The last recorded case of ducking in England occurred at Leominster in 1809.

Duckweed Order of minute, annual, floating, green, scale-like, flowering plants. They are allied to the arum order and grow in all standing waters. Eaten by ducks and geese, they comprise oval structures called fronds, with or without thread-like roots. In Britain they rarely develop their simple flowers, being usually propagated by budding or by bulbils, which hibernate in the autumn.

Du Cros William Harvey. British manufacturer. Born June, 19, 1816, in Dublin, he belonged to a Huguenot family. He became a doctor, but soon left that profession to become associated with the making of tyres by the Dunlop process. This led to his connection with other branches of the motor industry in which he was a leading figure. He was M.P. for Hastings, 1906-08, and died Dec. 21, 1918. His son, Arthur Phillip Du Cros, succeeded him as M.P. for Hastings, and in 1916 was made a baronet.

Ductility Property in many metals of being permanently elongated by a tensile stress or of being drawn into wire. Ductility is influenced largely by the tenacity of the metal. It is associated with malleability, but the most malleable metals are not necessarily the most ductile. The commoner

metals, arranged in their order of ductility, are gold, silver, platinum, iron, copper, aluminium, zinc, tin and lead. Gold is so ductile that one grain in weight can be drawn out into 500 ft. of wire.

Ductless Glands See GLAND.

Dudley County borough of Worcestershire. It is 8 m. from Birmingham and 121 from London, in the centre of the Black Country, and is served by the L.M.S. and G.W. Ryhs. There are ruins of the castle; these and the grounds are now public property. The industries are connected with the iron and steel trades, being chiefly engineering works and iron and brass foundries. Motor cars and cycles are also made here. Pop. (1931) 59,579.

Dudley Earl of. English title held since 1860 by the family of Ward. Earlier, a famous family had taken its name from Dudley. To this belonged Edmund Dudley, the extortionate minister of Henry VII., who was put to death in 1510, and Robert Dudley, Earl of Leicester, and several who bore the title of Baron Dudley.

When in 1643 the last Baron Dudley died his estates passed by marriage to the Ward family. The earliest of the Wards was a goldsmith, Humble Ward. In 1763 one of his descendants was made Viscount Dudley. John William Ward, the 4th viscount, was Foreign Secretary, 1827-28, and was made Earl of Dudley in 1827. The title became extinct in 1833, but in 1860 it was given to William Ward, another descendant of Humble Ward. His wife, Georgiana, was a prominent social figure. William Humble Ward, the 2nd earl, was Parliamentary Secretary to the Board of Trade, 1895-1902, Lord-Lieutenant of Ireland, 1902-06, and Governor-General of Australia, 1908-11. He died June 29, 1932. Witely Court, now sold, was the earl's chief seat, and his estates include coal mines in Worcestershire and Staffordshire. His eldest son is called Viscount Edmund, and his seat is Himley Hall, Staffordshire.

Duel Single combat. It was usually arranged by challenge and fought with deadly weapons under conventional rules, to settle a personal quarrel, or decide a point of honour.

The first duels were fought with swords or rapiers, but later the pistol became the favourite weapon. They were very common in France, Italy and other countries during the 16th and 17th centuries and thousands of men were killed in them, but efforts to stop them failed. Duels are occasionally fought to-day in those countries, as they are in E. Europe and S. America, but rarely with fatal results. However, in 1930 a duel with revolvers led to the death of a former president of Paraguay as well as of his opponent. In Germany duels among army officers were fairly common before the Great War, and duels of students are a feature of university life there.

In England, as elsewhere, duelling was a development of the old combats of the knights. It began in the 16th century, and duels were fairly frequent in the 17th and 18th centuries. Many prominent men went out to fight, including the younger Pitt, the dukes of York and Wellington, Canning and Castlereagh. The Irish gentry were noted for their propensity to fight duels. In the case of a fatal termination the survivor was guilty of murder,

and a duellist was executed in 1808. Notable duels were those between Lord Byron and Mr. Chaworth; between Lord Molineux and the Duke of Hamilton, described in *Esmond*; and the one in which Aaron Burr killed Alexander Hamilton. The last duel in England was fought in 1813.

Dufferin and Ava Marquess of Frederick Temple Hamilton-Temple Blackwood was born in Florence, June, 21, 1826. His father was Baron Dufferin and his mother a granddaughter of R. B. Sheridan; she was known for her songs, especially *The Emigrant's Farewell*. He became baron in 1841, and, having passed through Eton and Christ Church, Oxford, entered public life. He held positions in the Liberal ministry in 1861-66, and in 1872, having just been made an earl, he was appointed Governor-General of Canada. From 1884-88 he was Viceroy of India; and he was Ambassador in Rome, 1888-91, and in Paris, 1892-96. In his later years he was associated with Whitaker Wright's companies, a proceeding which involved him in considerable loss. He died Feb. 12, 1902, at the family seat, Clandeboyne, Co. Down.

In 1888 Dufferin was made a marquess. His eldest son, the Earl of Ava, was killed in S. Africa in 1902. The title passed, therefore, to a younger son, Terence, who became the 2nd marquess. He was succeeded in 1918 by a brother, Frederick, who became the 3rd marquess. He was made speaker of the Senate of N. Ireland in 1921, and in 1930 was killed whilst flying from France.

Dugdale Sir William. English scholar. A member of a Warwickshire family of some note, he was born Sept. 12, 1605. In 1638 he was given an official appointment in the Office of Heralds, and in 1677 he was made Garter King-at-Arms. Knighted in 1677, he died Feb., 10, 1686. Dugdale gave his life to the study of the past, and his works still have value. The chief are *Antiquities of Warwickshire*, *Monasticon Anglicanum*, an account of the religious houses in England, and *The Baronage of England*.

Dugong (*Halicore*). Genus of aquatic mammals found in the Indian Ocean and along the coasts of Australia. The dugong is from 7 to 9 ft. long with flippers and a tail resembling that of the whale. It is allied to the manatee, with which it constitutes the mammalian order Sirenia, or sea cows. The appearance of the dugong, which raises its head and body from the water while supporting its young, is supposed to have originated the stories of mermaids.

Duisburg Germany. Town and river port of the Rhine, near where that river is joined by the Ruhr. It is one of Germany's great industrial centres, and said to be the largest river port in the world. Pop. 421,217.

Duke English title. A variant of the Latin *dux*, the word was first given to a military leader. Later it was used in Germany for the ruler of a large district, such as Swabia and Franconia, and was introduced into France and England. In England, Edward, the Black Prince, was made a duke in 1337. The first Scottish duke dates from 1398.

Duke is the highest rank in the British peerage, and the coronet contains eight strawberry leaves. The younger sons of the sovereign are usually made dukes. The Duke of

Norfolk is the premier duke of England, and the Duke of Hamilton the premier duke of Scotland. A duke's daughter and his younger sons bear the courtesy title of lady or lord before the Christian name. His heir is a marquess. The duke and duchess are addressed as "your Grace," and occasionally a lady is a duchess in her own right, the Duchess of Fife being an example.

Dukeries District in the N.W. of Nottinghamshire. It includes the existing part of Sherwood Forest, and covers about 100 sq. m. It stretches from near Mansfield almost to Worksop. Edwinstone is its centre, and it is crossed by the L.N.E. Rly. Coal mines have been opened in the district, but much of it is still beautiful woodland. The name is due to the fact that at one time four dukes lived here. The Duke of Kingston was Lt. Thoresby, now the residence of Earl Manvers; the Duke of Norfolk was at Worksop; Clumber is still the seat of the Duke of Newcastle; and Welbeck of the Duke of Portland.

Dukinfield Borough of Cheshire. It stands on the Tame, 6 m. from Manchester. Here are cotton mills, engineering works and coal mines. Pop. (1931) 19,309.

Dulac Edmond. French artist. Born at Toulouse in 1882, he studied art in Paris under Laurens, and in 1905 settled in London where he has achieved success by his paintings and skill in illustrating and caricature. His exhibition in 1907 of water colours on subjects from *The Arabian Nights* brought him recognition as an artist of ability. Among the works he has illustrated are Shakespeare's *Tempest*, Andersen's *Fairy Tales*, and books of a similar character.

Dulcimer Musical instrument. Of Eastern origin and great antiquity, it was possibly brought to Europe by Crusaders. It consists of a trapeze-shaped sounding board over which are stretched metal strings. These are struck by a pair of leather-headed hammers with flexible stems. Hebenstreit's pantaleon, an enormous dulcimer perfected in 1705, directly influenced pianoforte making.

Dulcin Organic substance occurring as minute white needles. It is soluble in water, alcohol and ether, and is 200 times sweeter than sugar. It is said to be absolutely harmless to man and animals, and has the advantage over saccharine in that it has no bitter aftertaste and does not mask flavours.

Dulse Fleshy seaweed of the floridous order (*Rhodoglossia palmata*). It has purplish-red fronds irregularly cleft or otherwise divided, and serves in parts of Scotland, Ireland, Iceland and elsewhere as a food relish, either stewed or dried, and chewed instead of tobacco.

Duluth City and port of Minnesota, U.S.A., and capital of St. Louis county. It stands at the western end of Lake Superior, and is an important railway terminus. There are iron and steel works, flour mills and other industries, but it is chiefly a shipping centre. It has a fine harbour and an enormous quantity of wheat is shipped to be carried down the Great Lakes and along the St. Lawrence. Pop., (1930) 101,463.

Dulverton Town of Somerset, and a fishing and hunting centre.

It stands on the Barle, 20 m. from Taunton, on the G.W. Rly. Pop., 1590.

Dulwich Suburb of London. It is mainly in the borough of Camberwell to the S.E. of the city, and on the S. Rly., which has several stations here. A pleasant residential area, its oldest part is still known as Dulwich Village. At one time it possessed a spa.

In Dulwich is the large public school called **Dulwich College**. This was founded by Edward Alleyn, the actor, in 1619, and has a fine range of buildings with room for about 700 boys surrounded by extensive grounds. The old buildings of the college still stand. In 1857 another school called Alleyn's School was established here.

The picture gallery, founded in 1807, contains some very fine pictures by the Dutch masters, as well as by Gainsborough, Reynolds and others.

Duma Name of a representative body in Russia. It was set up in 1905, but disappeared towards the end of the Great War. It consisted of 442 members elected for five years. Election was indirect. Delegates were sent from the different towns and districts to a general assembly, which chose the members of the Duma.

Dumas **Alexandre**. French novelist. Born July, 24, 1802, his full name was Alexandre Dumas de la Paillerie, his father being an illegitimate son of a marquis of that family. His grandmother was a negress named Dumas. He left his home at Villers-Cotterets about 1823 to become a clerk in Paris, where he soon entered upon a literary life. He found time also to fight for Garibaldi in Italy, to live magnificently, spending freely the huge sums he earned, to have matrimonial and other adventures and to mix in politics. He died at Dieppe, Dec. 5, 1870.

Dumas was responsible for over 1000 books, on a great variety of subjects. Many of these were written by collaborators and assistants, and many more were accepted and signed by him without any share whatever in their authorship. The plays, however, with which he began his literary career and the books on his early travels, are undoubtedly his own, except in those plays where collaboration is openly acknowledged. The plays include *Henry III.* and *his Court*, which first made him famous in 1829. His sketches include books on travels in Switzerland, Russia, Italy and elsewhere. The reputation of Dumas, however, rests upon his historical romances, a field in which he is without a rival. They attained immense popularity and have been translated into English and other languages. The chief of them are the trilogy, to give them their English titles, *The Three Musketeers*, *Twenty Years After*, and *The Vicomte de Bragelonne*. *The Count of Monte Cristo*, *Chicot the Jester*, *The Black Tulip* and *Queen Margaret* may be mentioned, but there are many others. He also wrote *Memoires* in ten volumes, but his chief title to fame, in England at least, is as the creator of Porthos, Athos, Aramis and D'Artagnan.

Dumas **Alexandre**. French writer known as Dumas fils. Born July 27, 1824, he was a natural son of Alexandre Dumas père whose name he took on being made legitimate. He made his reputation with a novel *La Dame aux Camélias*, 1848, and wrote others including *L'Affaire*

Clémenceau, but it is as a dramatist that his name endures. *La Dame*, a great success when it was adapted for the stage, was followed by *La Question d'Argent*, *Une Visite de Noces*, *Denise* and a number of others, mainly problem plays. He also wrote essays and helped George Sand to prepare her work for the stage. He was elected to the Academy in 1874 and died Nov. 27, 1895.

Du Maurier **George Louis Palmella Bussan**. British artist and author. Born in Paris, March 6, 1831, his grandparents were French refugees domiciled in England during the French Revolution. At the age of seventeen he went to London and studied chemistry at University College, but later became an art student in Paris. After further studies in Antwerp and Dusseldorf, he returned to England where his artistic reputation was rapidly established. He contributed illustrations to many publications including *Once a Week*, *The Cornhill* and *Punch*. In 1865 he became a member of the staff of *Punch*, and for years his pictorial satires of social life were a feature in its pages. Owing to failing eyesight, in later years he took to writing, his first novel, *Peter Ibbotson*, appearing in *Harper's Magazine* in 1891, with his own illustrations. This was followed by *Trilby*, 1901, which attained instant popularity and was eventually dramatised. *The Martian*, his third novel, was published after his death. He died in London, Oct. 6, 1896.

Du Maurier **Sir Gerald**. English actor. A son of George Du Maurier, he was born in London, March 26, 1873, and educated at Harrow. He made his first appearance on the stage in 1894, and soon won a reputation. In 1910 he became manager of Wyndham's Theatre, London. In 1922 he was knighted. His many successes include *Captain Hook*, in *Peter Pan*, and the part of Bulldog Drummond on the stage and in a talking film.

Du Maurier's elder brother, Guy, wrote a popular play, *The Englishman's Home*. He was killed in action, March 11, 1915.

Dumbarton Burgh, seaport and market town of Dumbartonshire; also the county town. It is 15 m. from Glasgow on the L.M.S. and L.N.E. Rlys. The River Leven flows through it on its way to the Clyde; on one side is the town proper and on the other the suburb of Bridgend. A castle stands on the famous Rock of Dumbarton. There are shipbuilding yards and engineering works and also some shipping. Pop. (1931) 21,546.

Dumbartonshire County of Scotland. In the west of the country, it has a coast line on the Firth of Clyde. On its borders are Loch Lomond and Loch Long. Dumbarton is the county town; other towns are Clydebank, Kirkintilloch and Helensburgh. The Leven and the Kelvin are the chief rivers. Districts of the county are the Vale of Leven and the peninsula called Roseneath. The area is 276 sq. m. Officially the name is Dumbartonshire. Pop. (1931) 147,751.

Dumb Bell Term applied to a double-headed weight used in athletic training. Dumb bells are made of wood, or iron, and consist of a short bar bearing a rounded knot at each end. The name is derived from the fact that the early form was in the shape of a wooden bar with bell-shaped leaden ends.

Dumbness Inability to utter articulate sounds. It affects approximately one per 1000 in Great Britain, mostly persons deaf from birth or early infancy, but with the voice mechanism unimpaired. Sometimes dumbness results from brain defect, especially in children born of the unions of near relatives. It may result, too, from brain disease, as when due to war hysteria or syphilis, disease or paralysis of the vocal chords and the presence of tumours, whose removal may involve inserting an artificial larynx. Structural defects, such as tongue-tie or enlarged tonsils and adenoids in the throat, may impede proper word formation. *Lisping*, *stammering* and *stuttering* are slight forms of dumbness due to the voice mechanism being ineffectively controlled.

Dum-Dum Town of India. It is in Bengal, 7 m. from Calcutta, and consists of two distinct municipalities, north and south. It is chiefly known because it gives its name to a bullet first made at the government ammunition factory here. This was invented for use against the tribesmen of the frontier whose advances could not be stopped by ordinary bullets. The dum-dum bullet has a soft nose which causes it to flatten, or expand on entering the body, thus causing a very ugly wound.

Dumfries Royal burgh of Dumfriesshire; also the county town. It stands on the Nith, 82 m. from Glasgow, on the L.M.S. Rly. 'On the other side of the river is the suburb of Maxwelltown. The manufactures include cloth and hosiery, and there is an agricultural trade and also a trade along the river, which is navigable. There is a monument to Robert Burns, who lived here the last few years of his life (1791-96), and who is buried here. Pop. (1931) 22,795.

Dumfriesshire County of Scotland. In the south-west, it has a coastline on the Solway Firth. It covers 1100 sq. m., and is chiefly given up to the rearing of cattle and sheep. Dumfries is the county town; other places are Moffat, Sanquhar, Annan, Lockerbie and Langholm. On the southern border is Gretna Green. The chief rivers are the Annan, the Nith and the Esk, which divide the county into three districts or dales. The scenery is very beautiful, especially in the hilly regions of the north and west, and around Lochmaben in the centre. In the east are moors. Lochar Moss is a tract of reclaimed land in the south. The chief hills are the Lowthers. The county has associations with Burns and Carlyle. It sends one member to the House of Commons. Pop. (1931) 81,060.

Dumping Throwing down rubbish in a heap. The term is also used for piling ammunition into a heap, and for a similar process with other materials.

In economics it refers to the action of exporting goods and selling at prices lower than those prevailing for home consumption in order to undercut the producer in the importing country and gain control of the market. Legislation against dumping has been passed by the United States, Great Britain and the Dominions. The Safeguarding of Industries Act of 1921 was an anti-dumping measure. The value of dumping to an industry is said to be that it enables it to maintain a high level of output, by means of mass production, and thus reduces overhead charges.

Dunbar Burgh and watering place of Haddingtonshire (East Lothian). It is situated at the mouth of the Firth of Forth, 29 m. from Edinburgh. It is served by the L.N.E. Rly., and with two harbours is a fishing port. The ruins of the castle are of interest, as is the tolbooth. Pop. (1931) 3751.

The *Battle of Dunbar* was fought between the English and the Scots, Sept., 3, 1650. Cromwell invaded Scotland, and with 16,000 men moved to Dunbar to be in touch with his ships. The Scots, under David Leslie, followed and took up a position on the hills. They moved down to attack the English and the battle began at daybreak. It ended quickly in a decided English victory, about 3000 Scots being killed.

The Scottish title of *Earl of Dunbar* existed in the 13th century or earlier. It became extinct in 1611.

Dunbar William. Scottish poet. Born about 1460 in Haddingtonshire, he became a friar and went about the country preaching. Later he entered the king's service and discharged secretarial duties at home and abroad for some years. He was probably killed at Flodden in 1513. Dunbar's most famous poem is *The Thistle and the Rose*, written to celebrate the marriage of King James IV. and Margaret, daughter of Henry VII. He also wrote *The Dance of the Seven Deadly Sins* and other satires, and *Lament for the Makaris*.

Dunblane Burgh and market town of Perthshire. It is 5 m. from Stirling and 41 from Edinburgh, on the L.M.S. Rly. The church, once a cathedral, was built in the 12th century and restored in the 19th. The town has a spa, and its chief industry is the woollen manufacture. Here is the Queen Victoria Military School. Pop. (1931) 2692.

Duncan King of the Scots. He is chiefly known because of Shakespeare's mention of him in *Macbeth*. He became king in 1034 and was killed by Macbeth, probably in 1010.

Duncan Isadora. American dancer. She was born in San Francisco, May, 27, 1878, and appeared first on the stage in 1890. After a few years she crossed to Europe where she won a great reputation by the originality and grace of her dancing. She appeared in London, Paris and other capitals, and opened a training school near Berlin. She died as the result of a motor car accident, Sept. 14, 1927, and in 1928 her *Autobiography* appeared.

Duncan Viscount. British sailor. Adam Duncan was born in Dundee, July 1, 1731, and in 1746 entered the navy. He was in several sea fights and became commander of a ship. In 1782 he was made First Lord of the Admiralty, and in 1795 was appointed to command the fleet in the North Sea. He blockaded the Dutch fleet in the Texel, and met and defeated it off Camperdown, Oct. 11, 1797. He was made a viscount and died Aug. 4, 1804. The Earl of Camperdown is his direct descendant.

Duncansby Head Promontory of Scotland. It is in Caithness and is the most northerly point of the country. Off it are three rocks called the Stacks.

Duncombe Park Former residence of the Earl of Feversham. It is just outside Helmsley,

Yorkshire. The house was built early in the 18th century, and after the Great War became a school for girls. In the grounds are the ruins of Helmsley Castle.

Dundalk Market town and urban district of Louth, Irish Free State; also the county town. It stands on Castle-town River, near where it enters Dundalk Bay and is 54 m. from Dublin. The chief industry is the railway works; there is also an agricultural trade. Pop. 14,000.

Dundalk Bay is an opening of the Irish Sea. It is about 6 m. long and 7 wide at the entrance.

Dundee City and seaport of Angus or Forfarshire. It is situated on the north side of the Firth of Tay, here crossed by the Tay Bridge, 60 m. from Edinburgh by rail and 42 by road. It is served by the L.M.S. and L.N.E. Rlys. The buildings include the town churches, three under one roof, (St. Mary's, St. Paul's and St. Clement's), the cathedral of the see of Brechin, and the Roman Catholic pro-cathedral, and several other fine churches. Caird Hall is the gift of Sir James Caird. University College is part of the University of St. Andrews. There are technical schools and a high school. The city has several public parks: including the Caird, Baxter and Balgay. Dundee Law, a hill behind the town, is public property.

Dundee is a centre of the jute, linen and hemp manufacture. Other industries are engineering, shipbuilding, dyeing and printing. It is famed for its marmalade and is a publishing centre. There is a good harbour along the river and the port has a large trade in timber. It is also headquarters of the whaling industry. The city includes the watering place of Broughty Ferry. Pop. (1931) 175,583.

Dundee is the name of a small town in Natal. It is on the railway, 6 m. from Glencoe, and is a coal mining centre. Pop., 3000.

Dundee Viscount. Scottish soldier, also called Graham of Claverhouse. A son of Sir William Graham of Claverhouse, John Graham was born about 1649 and went to the University of St. Andrews. He became a soldier and saw a good deal of fighting in France and the Netherlands. He served under William of Orange, whose life he saved on one occasion. In 1678 he was sent to Scotland to put down the Covenanters, a work he did with great thoroughness. In 1689 he was made a viscount, and was killed at Killcrankie, July 27, 1689, whilst fighting at the head of the force he had raised for the Stuarts against William III. Sir Walter Scott refers to him as *Bonnie Dundee*.

Dundonald Earl of. Scottish title borne since 1669 by the family of Cochrane. The first earl was Sir William Cochrane, a royalist, and the title passed from one to another until it came to Thomas Cochrane, who became the 10th earl in 1831. Born Dec. 14, 1775, he entered the navy and saw a good deal of service against France. He then entered the House of Commons, and in 1814, probably on a false charge, was expelled from the navy and Parliament.

He entered the service of Chile, and commanded that country's navy during the war of liberation, winning several successes. He commanded the Brazilian navy (1823-25), and then the Greek navy. In 1832, having returned to England, he succeeded to the earldom, and was pardoned. From 1848-51

he was Commander-in-Chief of the Fleet in N. America. He died Oct. 31, 1860.

Douglas Cochrane (b. 1852), who became the 12th earl in 1885, was a soldier. He saw a good deal of service in Egypt and elsewhere, and led the cavalry force that entered Ladysmith in 1900. From 1902-04 he was in command of the Canadian militia. His seat is Gwyrrch Castle, N. Wales. His oldest son is called Lord Cochrane.

Dune Term applied to slowly moving sandhills formed on the seashore or in deserts by the agency of the wind. Sand dunes on the English coast may rise to the height of 40 to 50 ft., and in the Sahara to over 600 ft. On the Cornish coast the dunes have overwhelmed much cultivated ground, and similar conditions prevail on the Langshire and E. Anglian coasts. In Holland the dunes, partially strengthened, serve to protect the low-lying country in the vicinity of the Zuider Zee.

The **Battle of the Dunes** was fought on the dunes outside Dunkirk between the French and the Spanish on June 4, 1658. The French were besieging the town, then a Spanish possession. On the Spanish side were some English volunteers under James, Duke of York, and on the French side some regiments of Cromwell's Ironsides. Owing largely to the fighting qualities of the Ironsides, France gained a complete victory and captured Dunkirk.

Dunedin City and seaport of New Zealand. In South Island it stands on Otago Harbour, and is connected by railway with the interior. From it steamers go to Sydney, Melbourne and elsewhere, although the larger ones only come up to Port Chalmers, 8 m. away. Here is a university which is part of the University of New Zealand. The industries include refrigerating works, and the manufacture of woolen goods, boots, etc. Dunedin was founded by Scottish Presbyterians in 1848, and developed owing to the opening of the Otago gold mines. The name Dunedin is sometimes used poetically for Edinburgh. Pop. (1931) 86,500.

Dunedin Viscount. Scottish lawyer. Born in Perthshire, Nov. 21, 1819, Andrew Graham Murray was the son of a lawyer. He went to Harrow and Trinity College, Cambridge, and in 1874 became an advocate. In 1891 he entered Parliament as Unionist M.P. for Bute, and he was made Solicitor-General for Scotland, 1891-92. Again in 1895-96 he held that position, and from 1896 to 1903 was Lord Advocate. From 1903-05 he was Secretary for Scotland, and from 1905 to 1913 President of the Court of Session, becoming a Lord of Appeal in 1913. He was made a viscount in 1926 and retired in 1931.

Dunfermline Royal burgh of Fife-shire. It stands on the Firth of Forth, 17 m. from Edinburgh, on the L.N.E. Rly. The burgh was a residence of the kings of Scotland. Here Charles II. signed the **Solemn League and Covenant**. The chief industries are the manufacture of linen and linoleum. The burgh includes Rosyth, and a garden city. It was the birthplace of Andrew Carnegie and is the headquarters of the Carnegie Trusts. One of these provides a large annual sum to be spent on improving the burgh. Pittencrieff Glen is public property. Pop. (1931) 34,954.

Dungannon Market town and urban district of Tyrone, N. Ireland. It is 40 m. to the west of Belfast, on the G.N. (Ireland) Rly. Pop., 3830.

Dungarvan Market town, urban district and watering place of Waterford, Irish Free State. It stands on Dungarvan Bay, 28 m. from Waterford and 120 from Dublin where the Colligan River enters the sea. It is a fishing centre and has an export trade. Across the river is Abbey-side, with a castle now used as a barracks. Pop., 5300.

Dungeness Promontory on the south coast of Kent. It juts out into the English Channel not far from Rye. On it are a lighthouse and a coast-guard station. In 1652 there was a sea-fight near here between the English and the Dutch fleets.

Also, port of Queensland. Situated on the Hinchinbrook Channel, it exports sugar which is brought down the river Herbert. It is about 940 m. north of Brisbane.

Dunkeld Town of Perthshire. It stands on the Tay, 15 m. from Perth, on the L.M.S. Rly. The chief building is the church, once the choir of the cathedral, which was destroyed at the Reformation. Other parts of the building are in ruins and are national property. Near is Birmah. Dunkeld House is a seat of the Duke of Atholl. Pop., 1050.

Dunkery Beacon or hill of Somerset. It is on Exmoor, about 5 m. from Porlock. It is 1700 ft. high and about 12 m. round, and is the highest point on Exmoor.

Dunkirk Seaport of France. It is on the Straits of Dover, near the frontier of Belgium. It has two harbours well equipped with docks and quays, and there is a constant service of steamers with London, Dover, and elsewhere. Shipbuilding is carried on, and there are some manufactures. The name means the Church in the Dunes and in 1658 the Battle of the Dunes took place just outside it. See DUNE.

Dunkirk was long part of the Spanish Netherlands, afterwards passing to France. It was bombarded during the Great War by the Germans. Its modern prosperity is due to its nearness to the great industrial area of Belgium and N.E. France. Pop. 49,000.

Dunlin Name sometimes given to the red-backed sandpiper.

Dunlop John Boyd. British inventor. He was born in 1840 at Dreg-horn, Ayrshire, and for many years practised as a veterinary surgeon in Belfast. In 1887 he devised a pneumatic tyre which he patented in the following year, although an earlier form of pneumatic tyre had been the subject of a patent in 1846. In 1890 Dunlop sold his patent to William Harvey Du Cros (q.v.), and a company was formed for its commercial exploitation. The successor of this still bears his name, and Dunlop tyres are known all over the world. He died Oct. 23, 1921.

Dunmore Earl of. Scottish title borne since 1886 by the family of Murray. The 1st earl was Lord Charles Murray, a son of the Marquess of Atholl, who took his title from a village in Stirlingshire. William, the 3rd earl, fought for the Jacobites in 1745. Alexander, the 8th earl, won the V.C. in 1897, when Viscount Fincastle, title borne by the eldest son of the earl.

Dunmow Two places in Essex. Great Dunmow is a market town on the Chelmer, 8 m. from Braintree and 40 from London. It is on the L.N.E. Rly, and is a hunting centre. Near is Easton Lodge, the residence of the Countess of Warwick. Pop. 2800.

Little Dunmow, also on the Chelmer, is about 2 m. away. It is noted for the custom, paralleled elsewhere, and long observed here, of giving a hitch of bacon to any married couple who can publicly prove, having been married for a year and a day, they have not regretted the union. The examination is now held at Ilford.

Dunne Finley Peter. American humorist, known as the creator of Mr. Dooley. Born in Chicago in 1867 he became a journalist. He made his name by contributing to *The Chicago Times* sketches of a humorous kind under the name of Martin Dooley. He represented Dooley as an Irish-American who commented, in his own vivacious way, on the happenings of the day. The sketches have been published as *Mr. Dooley's Philosophy*, and under other titles.

Dunnottar Town of Kincardineshire. It is about a mile from Stonehaven and is famous for the ruins of its castle. One of the strongest in the country, it was besieged several times before it was dismantled in 1715. The ruins, which overlook the sea, are extensive and picturesque. Pop. 2250.

Dunois Jean. French soldier. Born in Paris, Nov. 23, 1402, he was a natural son of Louis, Duke of Orleans, a brother of Charles VI., and was known as the Bastard of Orleans. He became a soldier, was given a high command and soon made himself famous. He defended Orleans until it was relieved by Joan of Arc, and then entered upon a career of conquest. Gradually he drove out the English, a landmark in the campaign being the taking of Chartres in 1432. In 1450 he finally expelled them from Normandy and later from Guienne. His exploits made the Bastard a national hero before he died, Nov. 24, 1468.

Dunoon Burgh and seaside resort of the Firth of Clyde. The burgh includes Kilm and Hunter's Quay; the latter, situated at the entrance to the Holy Loch, is a fashionable yachting centre. There is a regular steamer service from Greenock and other places along the Clyde. Highland Mary was born here. Pop. (1931) 8780.

Dunraven Earl of. Irish title held since 1822 by the family of Wyndham-Quin. It began with Valentine R. Quin, an Irish landowner who was made a baron in 1890 and an earl in 1822. He took the title of Dunraven because his son, Henry, was married to the heiress of Thomas Wyndham of Dunraven Castle, Glamorganshire. Henry became the 2nd earl in 1824. His son, Edwin, who became the 3rd earl in 1850, was a scientist and a spiritualist.

Wyndham Thomas, who became the 4th earl in 1871, was a soldier and a war correspondent. Later he was prominent as a politician, especially in Irish affairs, but he is best known as a yachtsman, as he built yachts to compete for the America Cup. He died in 1926, and was succeeded by a cousin. The

earl's eldest son is called Viscount Adare and his seats are Adare Manor, Limerick, and Dunraven Castle, beautifully placed overlooking the sea near Porthcawl.

Dunrobin Castle in Sutherlandshire, the chief seat of the Duke of Sutherland. It stands on the coast of Dornoch Firth, not far from Golspie. A magnificent modern building, it occupies the site of an older castle. There are two brochs, or round towers, and a museum in the grounds.

Duns Burgh and market town of Merwickshire; also the county town. It is 55 m. from Edinburgh, on the L.N.E. Rly. Near is Duns Law, a hill 700 ft. high. Pop. (1931) 1788.

Dunsany Baron. Irish title held since 1439 by the family of Plunkett. Sir Christopher Plunkett, a landowner in Co. Meath, was the first holder, and it passed from one to another of his descendants until it came to Edward John Plunkett as the 18th baron. He was born July 24, 1878, and became a soldier, but is better known as a writer. His works include many novels and stories, and some successful plays including *The Glittering Gate* and *A Night at an Inn*. The family seat is Dunsany Castle in Co. Meath.

Dunsinane One of the Sidlaw Hills, Perthshire. It is 8 m. from Perth, and is famous for its mention in *Macbeth*. Here the king is supposed to have been defeated by Earl Siward. An ancient fort on it is called Macbeth's Castle.

Dunsink Village of Co. Dublin, Irish Free State. It is 4 m. to the N.W. of Dublin and is the site of the observatory of Trinity College, Dublin, which dates from 1785.

Duns Scotus Friar, and one of the most influential of the mediaeval schoolmen. He was born probably at Duns, Merwickshire, and became a teacher at Oxford, where he was connected with Merton College. He became a Franciscan and went to Paris, where his skill in controversy gained for him the title of Doctor Subtilis. He died in Cologne, Nov. 8, 1308. Scotus was the founder of Scotism, metaphysical doctrines which long struggled for the mastery against Thomism, the theological doctrines of St. Thomas Aquinas. The word dunce was first applied to his followers, because of their resistance to the "new learning."

Dunstable Borough and market town of Bedfordshire. It is 37 m. from London, on the L.M.S. and L.N.E. Rlys. In St. Peter's Church, Cranmer pronounced the divorce of Catherine of Aragon. The hills near are called Dunstable Downs. Pop. (1931) 8972.

Dunstaffnage Castle of Argyllshire. It is 3½ m. from Oban, overlooking Loch Etive. The ruins are those of a building of the 15th century, but there was a castle here at a much earlier date. In the early kings of the Scots lived and the Stone of Destiny was kept. The castle was long a seat of the Stewarts of Appin.

Dunstan English saint and prelate. Born at Glastonbury in 909, he went to the abbey school there and then to the court of King Athelstan. Later he returned to the abbey and became a monk. In 943 he was chosen abbot and soon became the chief adviser to King Edred. On Edred's

death in 955 he was exiled, but returned when Edgar became king of part of England in 957. The King made him bishop of Worcester, and in 959 of London also, and he remained the principal minister of Edgar and also served his son Edward. In 979 he retired, and on May 19, 988, he died at Canterbury. He was made a saint; many churches are dedicated to him.

Dunster Market town of Somerset. It is 23 m. from Taunton and 2 from Minehead, on the G.W. Rly. Dunster Castle, long the seat of the Luttrells, stands on a hill above the town in large grounds. The chief buildings are the church, the yeoman's market and the Luttrell Arms. Pop. 1380.

Dunsterville Lionel Charles. English soldier. Born Nov. 9, 1865, he was educated at Westward Ho College and entered the army in 1881. Later he transferred to the Indian Army and saw active service on the frontier and in China. In 1918 he was in command of the force that went from Mesopotamia to Baku to save the oil wells there. He wrote an account of this called *The Adventures of Dunsterville*. Dunsterville, who is the hero of Kipling's *Stalky & Co.*, wrote also *Stalky's Reminiscences*.

Dunwich Village of Suffolk. On the North Sea, 4 m. from Southwold, it was in Anglo-Saxon days an important seaport and the seat of a bishop. The harbour and buildings have been destroyed by the inroads of the sea.

Duodecimal Method of computation based upon the division of a scale into twelve equal parts. It is used in building and engineering calculations. Thus a foot is divided into twelve inches or primes, these into twelve parts or seconds, and similarly into thirds or fourths. A distinction is made between square and cubic feet by using the terms superficial and cubic primes, etc.

Dupleix Joseph François. French colonial statesman. Born at Landrecies, Jan. 1, 1697, he was the son of a merchant and in early life went to India for purposes of trade. About 1720 he settled there and soon became an official of the French E. India Co. He rose in the service, and in 1712, as Governor of Pondicherry, became the head of French India. Here he aimed at making France supreme in India. The war that broke out with Britain in 1744 gave him an opportunity. He prevented the English from obtaining Madras and held Pondicherry against them.

Although peace was made in 1748 the struggle between the Powers continued unofficially, and by controlling the native rulers he greatly extended his power. Clive, however, checked him, and in 1754 he was recalled and disgraced. He died Nov. 10, 1763.

Duquesne Marquis. French sailor, born at Dieppe in 1610 and became a sailor, like his father, who was killed in fighting the Spaniards. He himself made his reputation in sea-fights against the same foe. In 1643 he took a command in the Swedish navy which he led against the Danes. Again in the French service, he forced Bordeaux, which had been seized by rebels, to surrender in 1650. His services were again in demand in 1672 when war broke out with the Dutch. He won several fights, the greatest being in April,

1676, when he defeated the combined Dutch and Spanish fleets off Sicily, in an action in which De Ruyter fell. For this he was made a marquis. Before his retirement in 1684, he led a fleet to bombard Algiers. Duquesne died Feb. 2, 1688.

Dura Buried city of Syria. It is on the Euphrates and was discovered by some British soldiers in 1920. Traces of Greek and Roman civilisation have been found, including some fine sculptures. The excavation of the site has been undertaken by an expedition from the University of Yale.

Duralumin Trade name for a series of alloys of aluminium, copper, magnesium and manganese. It is used largely in aircraft work on account of its lightness, strength and hardness. In compound duralumin, zinc and nickel are added, and this alloy has age-hardening properties, becoming harder when allowed to stand for a few days after heat treatment.

Durazzo Town and seaport of Albania. It stands on the Adriatic Sea, 60 m. from Scutari. A very ancient place, it is connected with Tirana by road and railway. Durazzo, called Dyrrhachium by the Romans, was an important port when part of their empire. In 1501 it passed to the Turks, under whom its decay was hastened. In 1913 it became part of Albania, and was for a short time the country's capital. It was occupied by the Italians and then by the Austrians during the Great War. Pop., 5100.

Durban Seaport of Natal, Union of S. Africa. It stands on Durban Bay, 812 m. by sea from Capetown and 509 m. by rail from Pretoria, and is the terminus of a railway line that runs through Natal into the Transvaal. The city is well supplied with parks and open spaces and has zoological and botanic gardens. There is a harbour adapted to the needs of modern shipping, and Durban is the only port of consequence between Delagoa Bay and E. London. The chief industries are connected with the shipping and distributing trades. It is the commercial capital of Natal, and also a whaling centre. Durban is a popular watering place, Ocean Beach being the quarter devoted to this purpose. The city was founded in 1824 and is named after Sir B. D. Urban, its first governor. Pop., 151,000.

A small town of Cape Province 6 m. from Capetown is called Durbanville.

Durbar In India a state ceremony. The word really means an audience chamber. Later it came to be used for the council of a prince, or for his officials collectively. It was also used for receptions held by the princes or by the viceroy, and finally for the ceremony held to proclaim a new emperor. Magnificent durbars were held in 1903 and 1911 to proclaim King Edward VII. and King George V. as Emperors of India.

Dürer Albrecht. German artist. Born at Nuremberg, May, 21, 1471, he assisted his father, a goldsmith, but soon forsook that calling to study under Michael Wöhlgemut, the foremost artist in the city. Afterwards he spent some years in travel, visiting Venice and meeting Raphael. In his earlier years he devoted much of his attention to engraving on wood and copper, but after a second visit to Venice he concentrated on painting. Towards the end of his life he went to the Netherlands where Charles

V. made him a court painter. He died in Nuremberg, April 6, 1528. His home there is now a Dürer Museum.

Dürer's engravings on copper reveal a remarkable power of drawing in detail and richness of invention, seen especially in *The Knight, Death and the Devil*, *The Great Horse and the Little Horse*, and *The Arms of Death*. His woodcuts, which include a series on the Apocalypse, and some done for the Emperor Maximilian, are scarcely less notable, but his portrait paintings, while showing great skill in technique, are somewhat hard and severe. His paintings include *Adam and Eve*. The British Museum has a fine collection of Dürer's work.

Durfee Thomas. English sign-writer and dramatist. Born at Exeter in 1633 of a Huguenot family he soon began to write. He made a name with some comedies notably *The Fond Husband*, *Madame Fickle* and *Sir Burnaby Whig*. Durfee also wrote many songs, collections of which were published; one as *Wit and Mirth or Pills to Purge Melancholy*. He died Feb. 26, 1723.

Durham County of England. In the north of the country, it is between the Tyne and the Tees, with a coastline of 33 m. on the North Sea. In the west it is hilly and has much beautiful scenery; in the centre and east it is a densely populated industrial area with rich coal mines. The chief rivers are the Tees and the Wear. Durham is the county town, but several others are larger, these being chiefly in the industrial area along the Tyne and the Tees such as Gateshead, S. Shields and Stockton. Sunderland and the Hartlepoons are large seaports. Other places are Jarrow and Darlington. Bishop Auckland and Barnard Castle are among the places with historic associations. The county has many populous urban districts. The L.N.E. Rly. serves the county. Ten members are returned to Parliament. It is in the diocese of Durham, and covers 1013 sq. m.

Durham, owing to its position, was long a county palatine, its ruler being the bishop. He had his own courts and enjoyed great authority, a little of which was retained as late as 1836. Pop. (1931) 924,050.

Durham City, market town and the county town of Durham. It is on both sides of the Wear, 254 m. from London and 14 from Newcastle, and is reached by the L.N.E. Rly. The chief buildings are the cathedral and the castle, both standing high on land almost surrounded by the river. The cathedral, one of the most magnificent in England, has many features of interest, including the Galilee Chapel, the towers, the cloisters and the relics of St. Cuthbert. The castle, now used by the university, was once the residence of the prince bishops of Durham. Extensive restoration work was undertaken in 1927. Near it, on Palace Green, are other buildings erected for the university. The city has some old and interesting churches, one being St. Oswald's. The bridges across the Wear, especially Framwellgate, Prebend's and Elvet, are worthy of notice. Durham has some manufactures, but its chief trade comes from its position as a county, cathedral and university town. Pop. (1931) 16,223.

The University of Durham was founded in 1832. It consists of two parts. The older is at Durham, where it is closely associated with the Church of England, and consists of

University College and several halls. The system is residential and there are hostels for women students. At Newcastle there is Armstrong College and the College of Medicine. The university has a marine biological station at Cullercoats, agricultural research stations and an observatory.

The Durham Light Infantry is a regiment of the British Army. It consists of the 68th and 106th regiments of foot, the former of which dates from 1756. The regiment has a fine record of service and its battalions did splendid work in the Great War. The depot is at Durham.

Durham Earl of. English title held by the family of Lambton. The 1st earl was John George Lambton, a member of a family that had held land in Durham for centuries. He was born April 12, 1792, and succeeded to his father's estates when young. In 1813 he entered Parliament, as M.P. for Durham, and his advanced opinions made him known as "Radical Jack." In 1830, having been created a peer, he was made Lord Privy Seal, and as such he had a good deal to do with the passing of the Reform Bill. In 1833 he left office and was made Earl of Durham. In 1835 he went as Ambassador to St. Petersburg, and in 1837 as Governor-General of Canada. He soon resigned, but his term of office is memorable because of the Report which he prepared. This recommended the union of the two Canadas, and other measures, which were subsequently carried out. He died July 28, 1840.

The earl was succeeded by his son, George, and in 1879 by his grandson, John George, born in 1855. He was Lord Lieutenant of Durham and Chancellor of the University. He died in Oct., 1928. His twin brother, F. W. Lambton, then succeeded to the title and estates, but died a few weeks later. His son, John, then became the 5th earl. The earl's seat is Lambton Castle, Durham, and his eldest son is Viscount Lambton.

Durian Tree of the mallow order. It is a native of the islands and the archipelago of Malaya, where it is widely cultivated for its fruit. This contains a delicious, almond-flavoured, custardy pulp which is highly esteemed by the natives, although when unfresh it emits offensive odours. The chestnut-like seeds are eaten roasted or pounded. The fruit is prickly and about the size of a coconut; the tree grows to about 90 ft.

Dursley Town of Gloucestershire. It is 22 m. from Gloucester and 129 from London, on the L.M.S. Rly. Agricultural implements are made here. Pop. 2601.

Duse Eleonora. Italian actress. She was born Oct. 3, 1859, near Venice, and after juvenile successes made her mark in 1879. In 1883 she achieved international fame in *La Dame aux Camélias*. She was intellectual, influenced by Arrigo Boito, and a sincere helper of Italian drama, as exemplified by Gabriele D'Annunzio. Her successes in England include "Paula" in *The Second Mrs Tanqueray*, and "Nora" in *A Doll's House*, and many others in France and Italy. She retired in 1909, but reappeared in 1921, and died in America, April 21, 1924.

Düsseldorf City and river port of Germany. It stands on the Westphalian coalfield where the Dusselbach

falls into the Rhine. It is 24 m. from Cologne and is an important railway junction. Its many fine buildings include the former palace of the electors palatine, the law courts, the exhibition halls and the library. The city is well provided with parks, squares and promenades. Two bridges cross the Rhine here. One, opened in 1929, connects Düsseldorf with Neurs.

The city is famous as an art centre. The chief collections of pictures are in the academy of art and the municipal art gallery. There is a zoological garden and a stadium that will hold 50,000 people. Düsseldorf has a harbour but of greater importance are its manufacturing industries. These include iron and steel goods and chemicals. It is also a banking centre. Some of the buildings erected for business purposes are fine examples of modern architecture. Pop. 460,000.

Dust Particles of solid matter. They are present in the atmosphere from various causes. Dust of terrestrial origin is carried into the atmosphere by ascending air currents and consists of particles of soil or rocks, minute organisms, pollen of plants, particles from burning fuel, factories, etc. Some dust is of volcanic origin—that from the eruption of Krakaton, near Java in 1883, coloured the sunsets for a couple of years—whilst cosmic dust is derived from meteorites. The formation of rain, mist and fog depends upon dust particles acting as nuclei around which moisture condenses.

Dutch Auction Form of auction in which the salesman at first offers objects at prices higher than he is prepared to accept. He lowers the price gradually until reaching one which a purchaser accepts, the object being knocked down to the first bidder at that price. Should no bid result on reaching his minimum the object is withdrawn.

Dutch Metal Brass alloy containing a larger proportion (about 92 to 97 per cent) of copper than ordinary brasses and having a gold colour and high malleability. Dutch metal may be hammered out into thin sheets or leaves of less than $\frac{1}{16}$ of an inch in thickness and consequently is used as a substitute for gold leaf for gilding cheap articles. It is, however, liable to blacken with moisture or from atmospheric impurities. The varying shades of colour in Dutch metal are due to different proportions of copper in the alloy.

Dutch Reformed Church

Protestant body in the Netherlands, S. Africa and the United States. It is an offshoot of the National Church of the Netherlands, founded by early Dutch settlers in the United States when they first became independent of the mother church. It is Calvinistic in doctrine and Presbyterian in church government. There is a Dutch Reformed Church at Austin Friars, London, E.C.

Dutch Wars

Naval wars between England and the United Provinces. The first war broke out in 1652, ostensibly because of Holland's diplomatic rebuffs to England, really because of the intense commercial rivalry between the two countries, especially in the North Sea and the East Indies. The First and Second Dutch Wars, 1652-1654 and 1664-1667, were purely trade wars. In the first, Admiral Tromp considerably injured English naval prestige, until Admiral Blake

defeated him in 1653. The wars ended with the Treaty of Westminster (1654) and the Peace of Brede (1667) respectively. The Third War (1672-74) was bound up with continental politics, and the Dutch, under William of Orange, eventually forced England to make peace.

Duty A form of tax. The taxes on beer or whisky and on certain imports, such as tobacco, watches, motor cars and matches, are called duties. Those on beer and whisky, being collected on goods made in the country, are called excise duties. The others, being on imports, are called customs duties. See CUSTOMS, EXCISE.

Duval Claude. Famous highwayman. Born in Normandy in 1643, he settled in England about 1660, and was at first a servant of the Duke of Richmond. Later he became a highwayman and his exploits on the road made him feared and renowned. He evaded capture for some years, but in 1670 he was taken when drunk in a London inn, and was hanged at Tyburn.

Duveen Sir Joseph Joel. English art dealer. By birth a Dutchman, he was born in 1844. Having settled in England, he became a dealer in antiques in Hull, and a naturalised Englishman. In 1877, with his brother Henry, he founded the firm of Duveen Brothers and they were soon among the leading picture dealers in London and New York. Duveen was knighted just before his death, Nov. 9, 1908. He presented a Turner annex to the Tate Gallery and several pictures to the nation.

His son, Joseph, born in 1869, entered his father's business. He built additions to the Tate and National Galleries, and was made a baronet in 1926. In 1930 he assisted Mr S. Courtauld to establish a national institute of art.

Dux (Latin, leader). Word meaning a leader or chief. It is used in this sense in some schools for the head of the school, or of a term or class.

Dvina Name of two rivers of European Russia. The Northern Dvina flows north for about 360 m. It passes Archangel and empties itself into the White Sea by five mouths. It is navigable during the summer months.

The Western Dvina rises in Russia and passes into Latvia, falling into the Gulf of Riga, 9 m. from the city of that name. It is navigable and is part of the continuous waterway, helped by a canal, between the Baltic and the Black Seas. There was a good deal of fighting along this river between the Germans and the Russians during the Great War.

Dvinsk Town and river port of Latvia. It stands on the W. Dvina and is an important railway junction. It began as a post of the Teutonic Order, later becoming part of Poland. In 1772 it was taken by Russia, and in 1920 was given to Latvia. There is a trade in grain and other commodities, but this is much less considerable than it was before 1914 and the population has declined by more than half. Its other names are Dinaburg and Daugavpils. Pop. (1930) 13,226.

Dvůrák Antonín. Bohemian composer. Born Sept. 8, 1841, he studied music at Prague and won recognition as a composer with his Slavonic dances. In 1892 he became head of the National Conservatoire of Music at New York, and in 1901 head of the conservatoire at Prague. He died May 1, 1904. Dvůrák wrote a good deal of music in

which he interpreted the spirit of his own people. This included the *Stabat Mater* and a cantata.

Dwarf Term applied to man and to the normal height. Certain races of mankind are of short stature, as for example, the Bushmen of South Africa, with an average height of 4 ft. 7 in., and the Akkas or Pigmies, of Central Africa, about 4 ft. 10 in. in height.

Dwarf Trees which may bear flowers and fruit are cultivated in China and Japan by a system of root pruning and reduction of the water supply.

Dyak Aboriginal people of Borneo. Some of them still live in pile huts made of bamboo and use blow guns. They were chiefly known as head hunters, but this practice has now been suppressed.

Dyarchy Term meaning government by two elements in the state. It came into use in the 20th century when changes in the government of India were under discussion. Dyarchy was introduced when the constitution was altered so as to allow Indians to share the government with the British.

Dyeing Art of imparting colour to textile and other materials. It is therefore an important auxiliary to certain manufacturing industries, notably cotton. Various substances of vegetable origin have been used, and still are to a limited extent, as dyestuffs for fabrics, but although brilliant in colour these are more or less fugitive in character. Within recent years, however, the introduction of coal tar derivatives as dyestuffs has led to the disuse of most natural dyes except for special purposes, as the synthetic products give a wider range of tints and great permanency.

The chief vegetable dyes are indigo, fustic, logwood, archil and annatto, some of these being used for staining wood as well as textiles, and others like annatto and turmeric for colouring foodstuffs. Substantive dyes are those which unite directly with a fabric while adhesive dyes require a mordant—a metallic salt which unites with the dye to form an insoluble pigment or "lake."

To protect the industry an Act was passed in 1921, forbidding the import of dyestuffs into Great Britain except under licence. It was to last for ten years and under it a virile and progressive dye industry has been established in Britain. The Board of Trade has a Dyestuffs Industry Development Committee, and there is an advisory licensing committee in Manchester.

Dyer's Greenweed Common name of *Genista tinctoria*, a leguminous plant common in England and Central Europe. It was used formerly as a dye-producing plant. The flowers yield a bright yellow dye which, when mixed with a solution of wood, gives a green colour known as Kendal green. It is now superseded by more permanent coal tar dyes.

Dyke Term applied to an embankment erected on a river bank or on the sea shore to prevent the flooding of the adjacent land. These are seen in low-lying countries, such as Holland, the fen districts of England and the Mississippi region in N. America. In Holland the sea dykes are of great size and length, and are strengthened by blocks of granite and basalt, while the river dykes of lesser size are supported in places by piles or masonry. **Offa's dyke**, a dyke of

another kind, was built probably by Offa, King of Mercia, to keep out the Welsh.

Dymchurch Village and seaside resort of Kent. It is 4 m. from New Romney and was once famed for its smugglers. **Dymchurch Wall** is an embankment built to keep the sea from Romney Marsh. Pop. 700.

Dymoke English family which holds the office of king's champion. John Dymoke, champion at the coronation of Richard II., held the office as Lord of the Manor of Scrivelsby, Lincolnshire. Since then the championship has remained in the family, but it is now an honour only.

Dynamics Branch of physical science dealing with the nature of motion and the laws governing movement. It has its foundation in Newton's laws of motion, which state that force is necessary to change a state of rest or uniform motion, that change of momentum is proportional to the force applied, and that there is an equal and opposite reaction to every action.

Dynamite Powerful explosive. Used chiefly for blasting purposes, it consists of 75 per cent. of nitro-glycerine and 25 per cent. of kieselguhr, the latter substance (a siliceous diatomaceous earth) being used as an absorbent. The mixture, after being kneaded and passed through a sieve, forms a reddish-brown greasy powder, which can be burned without danger, but explodes violently with a detonator. To a large extent the original formula has been replaced by gelatin-dynamites in which gun cotton takes the place of kieselguhr.

Dynamo Generator of electric current in which mechanical energy is converted into electrical energy. The essential parts of a dynamo are the magnets and the armature with which are connected the commutator, and stationary brushes. The armature consists of a series of wires or conductors arranged around an iron core mounted on a shaft. It is rotated near the poles of a powerful magnet, and the current generated as the conductors cut the magnetic field carried from the armature by brushes of copper wire, or carbons rubbing on the commutator, to be used for lighting purposes or power.

Dyne Term used in physics. It is the unit of force, which, acting upon a mass of one gramme, will produce an acceleration of one centimetre per second every second. The erg or unit of work represents the work done in overcoming a force of one dyne through a distance of one centimetre.

Dysart Royal burgh and watering place of Fifehire. It is on the Firth of Forth, 28 m. from Edinburgh, on the L.N.E. Rly. At one time coal was shipped from here but in 1928 the harbour was closed. Pop. 4600.

The title of **Earl of Dysart** is borne by the family of Tollenmache. It was given in 1613 to William Murray, whose daughter married Lionel Tollenmache. She became Countess of Dysart on her father's death and the title has since remained with their descendants. The earl's seat is Ham House, Petersham, and his eldest son is called Viscount Huntingtower.

Dysentery Infectious disease. It is associated with inflammatory irritation of the lower bowels, sometimes with ulceration. It may arise from a specific bacillus, entering the body in food or drinking water and occasionally presenting malarial or scorbutic complications. Tropical conditions emphasize it; great epidemics sometimes ravage armies or closely-settled communities. Ipecacuanha is sometimes efficacious, with frequent irrigation and saline administrations. Death may supervene in a few days, or the disease may recur chronically for years.

Dyson Sir Frank Watson. English astronomer. Born, Jan. 8, 1868, the son of a Baptist minister, he was educated at the grammar school, Bradford and Trinity College, Cambridge, where he was second wrangler. In 1891 he became assistant at the Royal Observatory, Greenwich, and in 1905 he was made astronomer royal for Scotland. After five years in Edinburgh, he returned to Greenwich as astronomer royal. In 1901 Dyson was elected F.R.S. and in 1915 he was knighted.

Dyson William Henry. Australian cartoonist, known as Will Dyson. Born at Ballarat in 1883, he was educated at Melbourne. He settled in London, and made a reputation by his cartoons in *The Daily Herald*.

Dyspepsia Word meaning indigestion. It vaguely denotes a group of symptoms involving impaired power of digestion and various forms of gastric derangement, not necessarily limited to the discomfort occasioned by food remaining in the stomach. It is sometimes definitely diagnosable as acute or chronic gastritis, gastric ulcer, or as symptomatic of a general disease. Functional or nervous dyspepsia, due to abnormal activity, retardation or modification of the digestive processes, may occur in heavy drinkers or persons subject to constant exhaustion or mental depression. Acute dyspepsia may be due to single serious errors of diet, as eating unripe fruit, unrefresh or excessive food, or indulging in alcoholic excess.

Dysprosium Very rare metallic element. It was discovered in 1886 by spectroscopic examination of certain rare earths. Its symbol is Dy and it has an atomic weight of 162.5. It is found in the minerals gadolinite and euxenite associated with other rare elements, and its compounds show a strong absorption spectrum.

EAGLE Heraldic symbol. It dates from Persian, Egyptian and Roman times, and was used by Charlemagne, remaining on the imperial arms until the dissolution of the Holy Roman Empire in 1806. Russia, as the successor of the Greek Empire, and Austria used a double-headed eagle. Germany, which took the symbol in 1871, used a single-headed one.

As an American emblem the eagle was used by the Indians, and adopted by the United States as a national emblem, with a single head and in its talons arrows and an olive branch. The republic of Mexico has placed the eagle on its arms.

The eagle is the name of a gold coin of the United States. It is worth ten dollars.

Eagle Large bird of prey. Its feather-clad head, short sharply-hooked bill and habit of preferably killing its own prey distinguish it from the unfeathered head and longer bill of the vulture. The golden eagle, rarely seen in England, comes from Scotland or Ireland, where it builds its nest in inaccessible cliffs. It is about a yard long and will attack lambs, though usually it feeds on rabbits and hares. The erc, or sea-eagle, breeds in Scotland. There are many varieties in other parts of the world. A large owl occasionally seen in Great Britain is called the eagle owl. It is about 2 ft. long and will attack rabbits and fawns.

Ealing Borough of Middlesex. It is 6 miles from Paddington by the G.W., District, and Central London Rlys. Ealing Common and two parks, Walpole Park and Perivale Park, provide open spaces, and Gunnersbury Park, the old residence of Leopold de Rothschild, is shared with Acton. In 1901 Ealing was made a borough and Hanwell and Greenford were incorporated in 1926. Pop. (1931) 117,688.

Ear Organ of hearing. The human ear consists of three parts, outer, middle and inner. The outer ear, which consists of the pinna or auricle and the meatus, is of little importance, at least in man. In the meatus, the wax, which is dried excretion, accumulates, and may impede hearing. The middle ear, separated by the ear drum from the outer ear, has a close relationship with the brain and the throat. Any inflammation of this part of the ear may therefore be highly dangerous. The inner ear, separated by a membrane from the middle ear, is filled with fluid and in it is the cochlea, where the nerve of hearing ends.

The ear is subject to a number of diseases and complaints. Some merely affect the hearing, which usually becomes a little harder with advancing years, or may be impaired in the case of artillerymen and others who experience loud noises. Others are of an inflammatory nature and may be dangerous to life. The Royal Ear Hospital is in Huntley Street, London, W.1. See DEAFNESS.

Earache. This may generally be relieved by external heat, or a few drops of warm glycerine may be dropped into the ear passage which is then closed with cotton wool. If the pain is severe, use a few drops of a mixture of glycerine of carbolic and pure glycerine (1 in 7), properly mixed by the chemist.

Persistent earache or earache accompanied by a discharge or tenderness behind the ear should have immediate medical attention.

Earl Title in the British peerage. It ranks third, but historically is the oldest of all. Its equivalent in some countries is count, and an earl's wife is called a countess. An earl's eldest son bears his father's second title; the other sons use the word honourable and the daughters, lady before the Christian name. The Earl of Arundel, a title of the Duke of Norfolk, is the premier English earl; the Earl of Crawford and Balcarres is the premier Scottish one.

The first earls appeared in Anglo-Saxon times. Soon they were rulers of parts of the country, e.g., Earl Godwin. The office continued in Norman times and each county had its earl, who was entitled to a third part of its revenues. Soon the office became hereditary, but after a time the connection between earl and county was broken and it became simply a title of honour.

Earlston Market town of Lancashire. It is 187 m. from London and 3 from St. Helens and is a junction on the L.M.S. Rly. The industries include railway works. Its early name was Newton Junction. Pop. 9000.

Earl Marshal English officer of state. He is the head of the College of Heralds and his duties are chiefly concerned with the arrangements for coronations and other state ceremonies. The office is an old one and since 1672 has been held by Dukes of Norfolk. There were formerly Earl Marshals of Scotland and Ireland. In Scotland, till 1716, the office of Earl Marischal was held by the family of Keith.

Earl's Court District of London. In the borough of Kensington, it is famous for the exhibitions held here from 1884 until 1914. During the war period the place was used for refugees.

Earlsfield Suburb of London. It forms part of the metropolitan borough of Wandsworth, and is on the S. Rly.

Earlston Market town of Berwickshire. It is on Leader Water, 72 m. from Edinburgh, on the L.N.E. Rly. Fairs are held and there are small manufactures. Thomas the Rhymer, who is buried here, called it Ereildoune. Pop. 1750.

Earlswood District of Surrey. It is 22 m. from London, on the S. Rly. Here is a large institution for the mentally defective.

Early Closing Term chiefly used in connection with shops. Acts were passed limiting the number of hours during which shop assistants could be employed, one being the Shops Act of 1912, providing a weekly half holiday, but earlier closing in the evenings was not made compulsory until 1928. In Great Britain shops must close not later than 8 p.m., except one evening in the week, when they may remain open until 9. Exceptions are where tobacco, sweets and certain foodstuffs are sold. There is an **Early Closing Association** at 34-40 Ludgate Hill, London, E.C.4. See SHOP.

Early English Style of Gothic architecture following upon Romanesque or Norman and succeeded by the Decorated. It covers approximately the period 1189-1272. In it wide, round arches became slim, steeply-pointed lancets. Simple four-part vaulting, often ribbed, slender-clustered columns and deeply-hollowed mouldings, filled with dog-tooth ornament and conventional foliage, are exemplified in the transepts of Westminster Abbey, the cathedrals at York and Ely and on the west fronts of the cathedrals at Salisbury and Ripon and the Minster at Bevoisey. In literature, Early English is approximately a contemporary period marking the passage of Old English, or Anglo-Saxon, into Middle English.

Earn Loch and river of Perthshire. The loch, which lies 317 ft. above sea level, is 6½ m. in length. The temperature is so low that the water is said never to freeze. Ardvorlich House, which figures in Scott's *Legend of Montrose* as Darlinvarach, stands on the shore.

The River Earn flows from the foot of the loch and runs eastward, entering the Tay near Abernethy. **Bridge of Earn**, a village and watering place, is situated on the river about 6 m. from Perth.

Earsdon Urban district of Northumberland. It is 4 m. from N. Shields, and coal mining is the chief industry. Pop. (1931) 13,086.

Earth One of the planets. It is between Venus and Mars in the solar system and has one satellite, the moon. It rotates on its axis, causing day and night in 24 hrs., and takes a year to go round the sun, from which it is 93,000,000 miles away. Its diameter at the equator is 7900 m. and its circumference 24,900. Its area is 196,500,000 sq. m. of which only 55,500,000 are land. Its age has been estimated at 2000 million years.

Earth Term applied to the early chemists to certain metallic oxides which were regarded as basic. The alkaline earths were the oxides of calcium, barium and strontium. In relation to pigments used as the basis of oil and water colours, the term earth is used for the ochres, umbers, siennas and terre verte.

In electricity earth is used for some form of conducting apparatus in contact with the ground, the uniform potential of which forms a steady background to electrical changes. In a wireless installation the earthing device may take the form of a metal plate, copper tube or wire mat buried in the soil, or the conducting wire may be attached to a water pipe.

Earthenware Non-translucent pottery, glazed or unglazed. The wares called silicon, semi-porcelain, falence, stone and granite are earthenware, likewise Roman and Greek tiling and building blocks.

Earth House Primitive underground dwelling of the early metallic age. Plentifully distributed between the Tay and Moray Firth, they are sometimes called Picts' houses. Round or rectangular walls of flags or undressed dry stones converge beehive-fashion to capstone roofs beneath artificial mounds. They are sometimes approached by stone-paved corridors some 80 ft. long. It is suggested that they were refuges or store-houses connected with timbered surface dwellings. They were occupied during the

Roman occupation of Britain. Similar structures are found in Ireland and Cornwall.

Earth Pillar Isolated column of soft rock capped by a harder mass. It is due to the mechanical action of rain upon beds such as conglomerates, where the rain has washed away the softer material except where protected by an overlying stone. Earth pillars occur in moraines and glacial drifts in the Alps, Scotland and North America.

Earthquake Earth movement. Earthquakes vary from a mere tremor to a violent upheaval and dislocation of the earth's crust. The collapse of underground caverns, powerful stresses set up in strata causing the beds to snap suddenly under the strain, the infiltration of sea water into the deeper parts of the earth's crust, causing explosions in the heated rocks, or volcanic action, are among the causes. Most shocks originate along the lower regions adjacent to the great mountain ridges. It is estimated that in an area between Lima in Peru and Valparaiso in Chile there is an average of 15 earthquakes yearly. There was a destructive volcanic disturbance here in 1932.

Two terrible earthquakes of recent years were those in Sicily in 1908, when Messina was destroyed and more than 70,000 persons perished, and in Japan in 1923, when the casualties numbered 200,000. In 1906 there was one at San Francisco. In June, 1931, a distinct earthquake shock was felt in Great Britain.

Earthwork General term for the mounds, circles and barrows constructed by early man and marking the site of megalithic settlements. Associated with the larger earthworks are the great stone circles such as Avebury and Stonehenge, and in North America the mound dwellings of Ohio, Wisconsin and Illinois. Some earthworks, such as the barrows, are sepulchral in origin; others were fortifications or underground dwellings. The word is also used for a fortification made of earth.

Earthworm Family of worms living in the soil. The common British species is *lumbricus terrestris*. Their cylindrical bodies, tapering at both ends, comprise segmented rings each bearing recurved hooks with which they burrow in the soil. They swallow this for its organic contents and void the mineral matter as worm casts. Reproduction is hermaphroditic.

Earwig Family of insects. They have short, horny, beetle-like forewings which protect thin, membranous underwings folded fanwise and crosswise. The pincer-like appendages, popularly fabled to pierce the ear, are quite innocuous. The female sits on her eggs, watching over the young until their final moulting.

Easement Legal term for a right. Examples are a right of way or a right of light. Another is the right of support, as given by one building to another. In Scots law the equivalent is called servitude.

Easingwold Market town of Yorkshire (E.R.). It is 201 m. from London and 13 from York on the L.N.E. Ry. Here Laurence Sterne wrote the early part of *Tristram Shandy*. Pop. 2050.

East Sir Alfred. English artist. Born at Kettering, Dec. 15, 1849, he studied at the Glasgow School of Art and in Paris. In 1889 he visited Japan, where some of his best landscape work was done. His paintings

include "A Passing Storm," in the Luxembourg, Paris; "The Nene Valley," in Venice, and "The Golden Valley," at Leeds. Knighted in 1910, he was elected A.R.A. in 1899 and R.A. in 1913. He died in London, Sept. 28, 1913.

East Africa General term for the entire eastern part of the continent. It includes three British protectorates, Uganda, Zanzibar and Kenya, as well as the mandated territory of Tanganyika (q.v.), formerly German East Africa. It also includes a large Portuguese possession known sometimes as Mozambique.

German E. Africa was conquered by the British and their Allies during the Great War. Operations began in 1914, but for some time they were not very successful, although the coast was controlled by British ships. In Feb., 1916, General Smuts took command, and the country was gradually subdued, but the last of its German defenders did not surrender until Nov., 1918.

East Anglia District in the east of England. It includes the counties of Norfolk, Suffolk, Cambridge and Huntingdon and sometimes Essex. About 620 it became a kingdom and there were kings of East Anglia for about 300 years, although most of them were only vassal kings. The most famous was Edmund, who was killed by the Danes in 870.

Eastbourne County borough and watering place of Sussex. It stands on the English Channel, 66 m. from London, and is reached by the Southern Ry. To the west is Beachy Head. The attractions include a parade along the sea front with gardens called the Meadows, and a pier. The open spaces include Devonshire, Hampden and Gildredge Parks, as well as the Redoubt. Compton Place is a seat of the Duke of Devonshire who owns much of the land. Pop. (1931) 57,435. **Eastbourne College** is a public school with accommodation for about 500 boys.

Eastchurch Village of Sheppey, Kent. It is 5 m. from Queenborough, on the S. Ry. It is chiefly known as an aircraft centre. There was an important air station here during the Great War, which later became a gunnery school for the R.A.F.

Easter Ecclesiastical festival commemorating the resurrection of Jesus Christ. The name is derived from the Anglo-Saxon goddess of spring. Celebrated since the 2nd century, and depending upon the lunar calendar, Easter Day has varied through the ages. Now it is, briefly, the first Sunday after the full moon following the vernal equinox, falling between 22nd March and 25th April, both inclusive. A League of Nations committee in 1923 investigated the question of the calendar generally, and in 1928 a law was passed fixing Easter on the first Sunday after the second Saturday in April. The change will not come into force until an order in council has been approved by both Houses of Parliament.

Easter Island of the Pacific Ocean. It covers only 50 sq. m. and belongs to Chile, from which it is 2300 m. away. It was discovered on Easter Day, 1722, by a Dutch sailor. It is chiefly famous for a remarkable collection of stone monuments, on which are carvings of human faces and other figures, doubtless the work of prehistoric man. The island, which has a few native inhabitants, is used as a convict station.

Eastern Church Shortened name of the Holy Orthodox Catholic Apostolic Eastern Church. Representing the Christendom established by Constantine in the East Roman Empire, it accepts the general church councils down to the Great Schism and comprises pre-eminently the Greek and Russian, besides the Armenian and Coptic Churches. Its highest dignitaries are the patriarchs at Stamboul, Alexandria, Jerusalem and Moscow.

Eastern Question Name given to political difficulties arising out of the government of areas in south-eastern Europe. The conquests of the Turks put large areas, occupied in part by Christians, under the rule of the sultan. In 1774 Russia appeared as the protector of these peoples and gradually they were freed.

In the 19th century the eastern question continually occupied the attention of European statesmen. Greece was freed and in 1878 the Congress of Berlin recognised the independence of Bulgaria, Rumania and Servia. In 1907 Austria annexed Bosnia and Herzegovina, and then came the Great War. After this the Turkish dominion in Europe was reduced to small proportions.

East Grinstead See GRINSTAD.

East Ham Borough of Essex, part of Greater London. It is 6 m. to the east of the city, on the L.M.S. and L.N.E. Rlys. The chief industries are engineering and the manufacture of chemicals. Pop. (1931) 142,460.

East India Co. British company with India and the East Indies. It was given a charter in 1600 and trading stations were established at Surat, Fort St. George, Madras and Hooghli. From these grew the three presidencies of Calcutta, Madras and Bombay. The company ruled British India until 1784 when its powers were shared with the crown, which set up a board of control. In 1857 its power was wholly transferred to the crown, and in 1858 it was abolished. The company had a house in London in which Charles Lamb worked.

In 1602 Holland established an East India Co., but this came to an end in 1798. France had a company from 1664 to 1794 and Denmark had one from 1729 to 1801.

East Indies Name used for India, Malaya, Indo-China, the islands of Borneo, New Guinea, Java and the lands adjacent thereto. Sumatra, Java and many smaller islands belong to the Netherlands, as do parts of New Guinea and Borneo. These, known collectively as the Dutch East Indies, are under a governor-general and since 1925 have had a certain amount of self-government in the form of an elected Volksraad. The total area is 733,000 sq. m. and the pop. 52,000,000.

For men who have served in the East Indies there is the East India United Service Club at 16 St. James's Square, London, S.W.

Eastlake Sir Charles Lock. English artist. Born in Plymouth, Nov. 17, 1793, he studied in London and Paris and for some years resided in Rome. Elected A.R.A. in 1827, R.A. in 1829, and P.R.A. in 1850, he became the first director of the National Gallery, in which is his great work, "Christ Weeping over Jerusalem." He published a number of books on art. He died at Pisa, Dec. 24, 1865.

Eastleigh Urban district of Hampshire. It is 6 m. from Southampton and is an important junction on the S. Rly. The main industry is the manufacture of railway stock. Pop. (1931) 18,333.

East London City, seaport and watering place of South Africa. In the Cape Province, it stands at the mouth of the Buffalo River and is connected with Capetown, 800 m. away, by railway. The chief industry is shipping. Pop. 23,200.

East Lothian Alternative name for Haddingtonshire (q.v.).

Eastman **George**. American inventor. Born at Waterville, New York, July 12, 1854, he was educated at Rochester. In 1880 he perfected a process for making sensitive gelatine dry plates. In 1884 he patented a photographic roll film and in 1888 a Kodak camera. On these and other inventions Eastman built up an enormous photographic business at Rochester. His gifts for charitable purposes are estimated at £15,000,000. Rochester received many of these, but they also include a dental clinic in London. He shot himself on March 14, 1932.

Easton Lodge Residence in Essex. It is 8 m. from Bishop's Stortford, on the L.N.E. Rly. The estate belonged to the Maynard family of which the Countess of Warwick was heiress. The house is used by Labour and Socialist politicians for conferences.

Eastwood Market town and urban district of Nottinghamshire. It is 13½ m. from London by the L.N.E. Rly., and a coal mining centre. Pop. (1931) 5360.

Eaton Hall Residence of the Duke of Westminster. It stands on the Dee, 4 m. from Chester. Built in the Gothic style in the 19th century on the site of an earlier hall, it contains some remarkable treasures and stands in a park of 400 acres.

Eau de Cologne Celebrated perfume. It was prepared in the first place by Johann Maria Farina at Cologne soon after 1700. Manufactured at first by a secret process, the perfume is now made in England and other countries, the essential oils of citron, orange, bergamot, neroli, rosemary and sometimes geranium entering into its preparation.

Ebbisham **Baron**. English politician. (George Rowland Blades was born April 15, 1868, and entered the family printing business. He was elected to the city corporation of London and in 1926-27 was lord mayor. From 1918 to 1928 he was Unionist M.P. for the Epsom division. In 1918 he was knighted and in 1922 made a baronet. In 1928 he became a peer, as Baron Ebbisham.

Ebbsfleet Hamlet on the coast of Kent. It is 3½ miles from Ramsgate. Tradition has it that here Hengist and Horsa landed in 449 and St. Augustine in 597 on his mission to convert the Saxons.

Ebbw Vale Urban district of Monmouthshire. It is 162 m. from London by the G.W. Rly., and is situated on a tributary of the Ebbw River. It is in a coal mining area, but its large steel works were closed in 1930. Pop. (1931) 31,695.

Ebert **Friedrich**. German politician. Born in Heidelberg, Feb. 4, 1870, he became a trader there. In 1892 he was made editor of a socialist paper at Bremen and he

gradually became one of the leaders of the social democratic party. In Nov., 1918, he was one of the small group of socialists who took charge of affairs on the flight of the emperor, signed the armistice and declared the country a republic. As provisional president, he called a national assembly which, in Feb., 1920, elected him first president, a position he held till his death in Berlin, Feb. 28, 1925.

Ebonite Hard vulcanised rubber. It is made by strongly heating a mixture of crude rubber and 20 to 30 per cent. of sulphur, the product being pressed and polished. It is a black, horny substance which is a good non-conductor of electricity and is unaffected by acids or alkalis.

Ebony Tree of the natural order *ebenaceae*. There are several varieties and in some the fruit is edible. The tree grows only in tropical areas, notably in India, Ceylon and parts of Africa. Its wood is extraordinarily hard and it is in various colours, but the black is the most useful. It takes a fine polish and is used for mathematical instruments, walking sticks and sometimes for furniture.

Eboracum Roman name of York. A legionary fort of 32 acres was established here about A.D. 75. A civil settlement arose and in the 4th century became an episcopal see. The Archbishop of York still signs himself Ebor. See YORK.

Ebro River of Spain. It rises in the mountains in the north of the country and, flowing mainly east, enters the Mediterranean just below Tortosa. Saragossa and Toledo are on its banks. It is 165 m. long and its tributaries include the Huerva, Gállego and Guadalepe.

Écarté Card game. It originated in France early in the 16th century. It is played by two players with 32 cards, those between two and six being discarded. Five cards are then dealt to each player and the last turned up as a trump. The rules allow the players to discard cards and take up others. Play is as at whist and a game consists of five points. The ace ranks below the jack, leaving the king as the highest card.

Ecclefechan Village of Dumfriesshire. It is 13 m. from Dumfries, and is portrayed as *Entepuhl in Sartor Iccartus* by Thomas Carlyle, who was born and buried here. Pop. 670.

Eccles Borough of Lancashire. It is near Manchester, on the Irwell, and is 18½ m. from London by the L.M.S. Rly. The cakes originally made here have become generally noted. The industries are the same as those of Manchester. Pop. (1931) 41,115.

Ecclesfield Town of Yorkshire (W.R.). It is 5 m. from Sheffield, on the L.M.S. and L.N.E. Rlys. The parish church of S. Mary, built in the Perpendicular style, was formerly known as the minster, and formed part of a priory. The industries include iron and steel works, collieries and paper mills.

Ecclesiastes Book of the Old Testament. It comprises the discourses and aphorisms of a deponent sage, Koheleth, represented as the instructor of a body of disciples. His reflections upon nature's eternal routine and the transitoriness of man's life culminate in the assertion "all is vanity."

Ecclesiastical Commission

Body appointed to manage the property of the Church of England. The commissioners include the archbishops, bishops and other prominent men, but the acting commissioners are only three in number. The commission was set up in 1836 and its offices are at 1 Millbank, Westminster, London, S.W.1. In 1930 the income managed amounted to over £3,000,000. Of this over £2,200,000 was paid to the clergy, including the archbishops and bishops, and £560,000 was given to improve the value of livings. The property of the Church of Scotland is also managed by an ecclesiastical commission at 22 Hanover St., Edinburgh.

Ecclesiastical Jurisdiction

Exercise of jurisdiction by ecclesiastics over fellow ecclesiastics and laymen. In England the powers of jurisdiction are now somewhat limited, matrimonial and testamentary jurisdiction, to name only two, having passed from Church to State. The chief ecclesiastical courts in England are (a) the Court of the Vicar-General whose function it is to correct manners and confirm bishops; (b) the Court of Faculties which deals with marriage licences; (c) the Chancery Court of York; (d) the Consistory Courts of the various Diocesan bishops, situated in their cathedral cities; and (e) the Court of Arches, the Ecclesiastical Court of Appeal. Appeal from a judgment of the Court of Arches can only be made to the judicial committee of the Privy Council.

Ecclesiastical Law The rules governing the rights and obligations of a Church established by law. English ecclesiastical law is derived from common law, canon law, and statute law. Its jurisdiction, formerly exercised over such matters as probate and divorce, has been removed and it now deals only with ecclesiastical matters.

Ecclesiasticus Alternative title of an apocryphal Old Testament book, *The Wisdom of Jesus the Son of Sirach*. Written originally in Hebrew, the author's grandson made a Greek version after reaching Egypt, 132 B.C. It holds together aphorisms pertaining to practical morality, the praises of wisdom, nature and mighty men. Fragments of the Hebrew version, rediscovered from 1896 onwards, have restored much of the original text.

Echelon Military term. It refers to an arrangement of troops in which each division is a little to the side, either right or left, and to the rear of the one nearest to it. In a like sense it is used of warships. An echelon lens is one in which the plates of glass are arranged so that the edges resemble a flight of steps.

Echidna Family of spiny ant-eaters. Allied to the duck-bills, they are mammals and are found in Australia and New Guinea. Their two eggs are hatched in a pouch beneath the body. There are five-toed and three-toed forms. The head and body bear stiff hairs and short, thick spines. The long, slender, nostril-tipped beak encloses a worm-like, extensible tongue.

Echo Mountain nymph. She passed her time in diverting the attention of Hera from the amours of Zeus. Hera made her speechless, except that she could repeat the last words of others. Echo fell in love with

Narcissus, and, failing to awaken a like passion in him, pined away.

Echo Reflection of a sound after an interval of time from a wall or similar surface. It is produced by waves of compression or rarefaction in the air. The sound is reflected at right angles to the surface and consequently an echo from the walls at different angles and distances gives rise to multiple or repeating echoes.

The echo sounder is an instrument which has been used on trawlers to keep in touch with shoals of fish.

Echo Organ Musical instrument, a novelty of the Restoration period. It consists of a repetition of the treble portion and chief stops of a church organ, softly voiced, placed distantly in a box, and played from an individual manual. It is now connected by electricity. Purcell and Handel used echo organs. Examples are in Norwich and Westminster Cathedrals.

Echuca Town of Victoria, Australia. An important river port, it stands at the junction of the rivers Murray and Campaspe. It is about 155 m. by railway from Melbourne, and is a centre for the timber, wool, and wine trades. It also attracts trade from the Riverina district. Pop. 4137.

Eckener Hugo. German aviator. Born Aug. 10, 1868, he was a pupil of Count Zeppelin. He piloted the Graf Zeppelin across the Atlantic with 57 people on board in Oct. 1928; in 1929 he flew round the world, and in July, 1931, to the North Pole. He has made flights to South America and other places to demonstrate the possibility of the airship as a regular means of transport.

Eckington Market town of Derbyshire. It is 152 m. from London by the L.N.E. Rly, and has coal mines and iron and steel works.

Eclecticism Practice of selecting from different systems. Thus Cicero, influenced by Platonic scepticism, studied at Athens and professed a composite philosophy embodying Peripatetic, Stoic and even Epicurean elements. Leibnitz' mingled principles were derived from Aristotle and Descartes. Schelling welded idealist, pantheist and mystical beliefs.

Eclipse Darkening of one of the heavenly bodies by the interposition of another, either between it and the spectator or between it and the sun. The term is generally used for the eclipses of the sun and the moon, which afford valuable astronomical information.

An eclipse of the sun is caused by the moon passing between it and the earth; it may be either total or partial. An eclipse of the moon is caused by the earth's shadow passing over it. There may be as many as seven eclipses in a year, but the usual number is four. Only occasionally are they visible in Great Britain. In 1930 there were two eclipses of the sun and two of the moon. In 1931 there were three of the sun and two of the moon. None of these eclipses of the sun were visible at Greenwich but both eclipses of the moon, April 2 and Sept. 26, were total eclipses and visible from Greenwich. Eclipses caused by the moons of Jupiter are also of great interest to astronomers.

Eclipse Name of a racehorse regarded as the greatest of its kind. He was born May 3, 1764, and raced in 1769 and

1770, without ever being beaten. He was then used for stud purposes and from him most of the English racehorses are descended. The horse's skeleton is in the Royal Veterinary College, at Camden Town, London. The *Eclipse Stakes* is a race run at Sandown Park since 1884.

Ecliptic Apparent annual path of the sun in the heavens, but really the orbit of the earth round the sun. The plane of the ecliptic forms a standard level for comparison of all other directions. The ecliptic is inclined about $23\frac{1}{2}^\circ$ from the perpendicular, but this inclination is liable to a slight increase or decrease over long periods.

Eclogue Short pastoral poem. The best known examples are those of Virgil.

Ecology Section of botany and zoology dealing with the relation of plants and animals to their environment. It involves a knowledge of both the form and structure as well as physiology. The factors of environment include altitude and degree of exposure; temperature, light and rainfall; physical and chemical nature of the soil, and the influence of other plants, animals and man. These conditions have a marked effect on distribution.

Economics Originally the science of household management. Much later the term political economy came into use to denote the production, distribution and consumption of wealth. This was first discussed in France early in the 17th century, and from there its study spread to England. The foundation of the science is usually attributed to Adam Smith, who, in 1776, published *The Wealth of Nations*. This was followed by the writings of John Stuart Mill, David Ricardo, and many French and German economists.

These early economists regarded political economy as free from all social and ethical considerations. They imagined an economic man, a being who had only material wants and who was satisfied when these were supplied. Towards the close of the 19th century economists began to take account of education and housing, even pleasure and recreation, and gradually the word political was dropped. Political economy became economics and its scope was not merely land, capital and labour, rent, interest and wages, but everything that goes to make a full life possible.

Economics is a subject of study at all the universities, and examinations therein are part of some of the degree courses. There are professors and lecturers in economics at almost all centres of higher education, as at the London School of Economics and Political Science in Houghton St., Aldwych, London, W.C. and for economists the principal publication is *The Economic Review*.

Ecuador Republic of South America. In the north of the continent, it lies between Colombia and Peru, with a coastline of about 500 m. on the Pacific. The area is put at 276,000 sq. m. and the population at about 2,000,000, of whom some 500,000 are Indians. Quito is the capital, Guayaquil the largest town and chief seaport. The two are connected by railway, but, in general, communications are bad. Much of the country is covered by the Andes, with several peaks 20,000 ft., or thereabouts in height. There are vast and valuable supplies of timber. In the cultivated area coconuts, coffee and cotton are grown. Oil is found and the land is rich in iron, copper, lead and other minerals.

Ecuador, which derives its name from the fact that the equator passes through it, became an independent state in 1830. It is governed by a president and a congress of two houses on the United States model. There is a small army recruited by universal service. The unit of currency is the gold sucre of 100 centavos; 5 sucres go to the U.S. dollar.

Eczema Properly speaking, this term covers a wide range of skin diseases, as most of them exhibit some characteristic feature of eczema at times. It is spoken of as acute and chronic, dry and moist, infective and non-infective. Normally it is non-contagious, but it is attended by more or less discharge and itching. Besides reddened skin, blisters or vesicles may form, discharging a watery or purulent serum and producing crusts or scales. A non-weeping form, dry eczema, leaves the skin, though irritable, dry and scaly. Either form may be acute, vanishing after a few weeks, or last for years, with intervals of partial recovery. For **Moist Eczema** use calamine, boracic or zinc oxide powder, and protect from the atmosphere. For **Dry Eczema**, which is a scaly skin eruption with irritation, use greasy applications such as boris ointment, cold cream, or lanoline. Do not use soap. Attention should be paid to the diet and general health, and if the condition is at all serious a doctor should be consulted as drug treatment may be necessary.

Edam Town of the Netherlands. It is 13 m. from Amsterdam and is situated near the shore of the Zuider Zee, with which it is connected by a canal. Its name is derived from the dam built on the small River Ye. The round red Edam cheese is one of the chief dairy products of the district.

Edda Norse name for two collections of Icelandic literature, the elder poetic, and the younger prose. Brynjulf Sveinsson, an Icelandic bishop, discovered the elder in 1643. It is known as the *Saemund Edda*, as it is ascribed to the historian Saemund Sigfusson (1055-1132), but it is considered by some authorities to belong to an earlier date.

The younger, in three parts, was compiled by Snorri Sturluson (1178-1241). The first part contains legends and stories of mythology. The second is a treatise on the poetic art, and the third treats of Norse prosody.

Eddington Sir Arthur Stanley. English astronomer. Born at Kendal, Dec. 28, 1882, he was educated at Owens College, Manchester, and Trinity College, Cambridge, where he was senior wrangler (1901). He became chief assistant at the Royal Observatory, Greenwich, and was made Plumian Professor of Astronomy at Cambridge in 1913. Eddington, who was knighted in 1930, has written much on astronomy and kindred subjects.

Eddy Mary Baker. Christian scientist. Born in New Hampshire, July 10, 1821, she began, about 1866, to study the system which she called Christian science. The basic principle of this is that disease is an illusion and can be cured by working on the mind. In 1879 she founded the first church in Boston and the movement spread widely and rapidly. Mrs. Eddy wrote a great number of books, which are used as text books by her followers. She died Dec. 3, 1910.

Eddystone Rock in the English Channel. It is 14 m. from Plymouth breakwater. The first lighthouse

finished in 1700, was destroyed in 1703. The second was burned down in 1755. The third of stone, which was finished in 1759, was taken down about 1880 and has been re-erected on the Hoe at Plymouth. The present lighthouse was completed in 1882; its light can be seen 17½ miles away.

Edelweiss (*Leontopodium alpinum*). Hardly perennial plant of the order Compositae. Native to mountainous regions and found largely in Switzerland, it is easy of cultivation as a garden or rockery plant. The hairy leaves have a whitish woolly appearance and the flowers are greyish white clusters.

Eden Name of two British rivers. The English Eden rises in Westmorland. It flows north into Cumberland past Appleby and Carlisle into the Solway Firth. It is about 65 m. in length and is a salmon stream.

The Scottish Eden, which is 30 m. long, flows E. from the junction of two little streams in Kilmross-shire and enters the North Sea by an estuary, after passing through Fifeshire. The chief town on the river, in which there are salmon, is Cupar.

Eden Garden of. Locality planted by Jehovah for man's first earthly abode (Gen. ii.). It was watered by a river, the names of whose fourfold branches have occasioned much research, one being commonly identified with the Euphrates. Scholars have variously located Eden in S. Mesopotamia, Arabia and the Nile Delta.

Edenbridge Market town of Kent. It is situated on the Eden near the Surrey border, on the Southern Rly., 25 m. from London. There is a trade in agricultural produce. Pop. 2393.

Edenhall Village of Cumberland. It stands on the River Eden, 3 m. from Penrith. It is famous for its hall, which, until sold about 1920, was the seat of the Musgrave family. It is now a school for girls. Its greatest treasure was a goblet of Venetian glass called the Luck of Eden Hall.

Edentata Order of mammals lacking incisor teeth, and sometimes cheek teeth also. It comprises the S. American anteaters, which are toothless, coarse-haired tree dwellers with worm-like tongues, and armadillos, which are short-tongued, scale-covered burrowing creatures with unenamelled cheek teeth. Sometimes classed as edentates are the herbivorous tree-dwelling sloths, of which the gigantic mylodon and megatherium occur in a fossil state. The scaly anteaters, or pangolins, of Asia and Africa and the Cape anteater or aardvark belong to this class.

Edessa Ancient city of Syria, on the site of modern Urfa. At one time the capital of a little kingdom, it is best known as a centre of Christianity in Roman times. The Romans made it a military station and gave it the name of Edessa. In the 7th century it was taken by the Mohammedans and there was much fighting for it during the crusades.

Edgar King of the English. A son of King Edmund, he was born in 911 and was only two years old when his father died. In 957, on the death of his uncle, King Eadred, he was given the land north of the Thames, but in 959 his brother Eadwig or Edwy, died, and he became king of the south as well. He reigned until 975 and won the name of the peaceful, his chief adviser being Dunstan. He was recognised as overlord by other rulers and was crowned on the Dec by six

or eight of these lesser kings. He died, July 9, 975, and was buried at Glastonbury.

Edgar English prince called the Aetheling. He was born in Hungary, son of Edward, the exile, and grandson of Edmund Ironside. In 1066, being then in England, he was proclaimed king in the north in opposition to William I. The risings in his favour, however, were without success and he made his peace with the Conqueror. He lived in Normandy for many years, helped to resent his nephew, Edgar, on the Scottish throne, went on a Crusade and was last heard of as a prisoner after the Battle of Tinchebrai in 1106.

Edgehill Hill of Warwickshire. It is about 3 m. from Kington, on the border of Oxfordshire, and is noted for the indecisive battle fought here, the first in the Civil War, Oct. 23, 1642.

Edgeworth Maria. English writer. Born at Black Bourton, Oxfordshire, Jan. 1, 1767, she helped her father to write *Practical Education*. She then began to write the stories of Irish life on which her fame depends: *Castle Rackrent*, *The Absentee* and *Ormond*. She also wrote *Moral Tales for Young People* and other books, and finished her father's *Memoirs*. She died May 22, 1849.

Edgware District of Middlesex. It is 11 m. from London and is served by the L.N.E. Rly., a tube railway and trams and buses. The chief building is S. Margaret's Church, a modern structure with an old tower. Near is Canons Park, where the Duke of Chandos built a palatial residence; and here was the forge of William Powell, Handel's harmonious blacksmith, who is buried at the adjoining Whitechapel.

Edict Something proclaimed by authority; an order issued by a king or lawgiver. The first edicts were those issued by the praetor at Rome. Later the word was specially used for laws dealing with religious matters, as the Edict of Nantes.

Edinburgh Capital of Scotland and county town of Midlothian or Edinburghshire. It stands on the south side of the Firth of Forth, 393 m. from London, and is served by both the L.M.S. and L.N.E. Rlys. Since 1920, when its boundaries were greatly enlarged, it has included Leith, Portobello, Cowalshrine, Colinton and other districts. It is governed by a council under a Lord Provost, and sends six members to Parliament. Its area is 32,000 acres. Pop. (1931) 438,988.

Edinburgh is rich in historical buildings and associations. Prominent are its castle, with S. Margaret's Chapel and the National War Memorial; the Palace of Holyrood; and the Cathedral of S. Giles, with the Chapel of the Order of the Thistle. An earlier national memorial is finely placed on Calton Hill, overlooking the city proper; another notable eminence is Arthur's Seat. The Church of Scotland has many places of worship, including S. Andrew's and S. George's. S. Mary's Cathedral belongs to the Episcopalians, who have a bishop here; the Roman Catholics have also a fine cathedral and an archbishop. The old Parliament House is now used as the law courts; the Advocates' Library therein, having been made into the national library of Scotland, is being removed to a fine new building. The city possesses the Scottish National Gallery, National Portrait Gallery and National Museum. The observatory

is on Blackford Hill. The Infirmary and the Royal Scottish Academy occupy fine buildings. There are zoological and botanical gardens, and the city has some 60 parks and open spaces, including the Braid Hills. In the old part, called *Auld Reekie*, are the historic thoroughfares of High St., Canongate, the Grassmarket and the Lawnmarket.

Notable houses include the one occupied by John Knox and the one in the Lawnmarket given to the city by Lord Rosebery. Other landmarks are the Mercat Cross, the Tolbooth, the Tron Church and the Greyfriars Churchyard. Princes St., with its gardens, is one of the finest thoroughfares in Europe and there are some noble squares. The city has memorials to Scott, Burns and other eminent Scotsmen.

Apart from the university, Edinburgh has colleges of art, agriculture and veterinary science, and several for theological students. The Heriot-Watt Technical College is another centre of higher education. Edinburgh Academy, founded in 1825, the Royal High School, Fettes College and Merchiston Castle School are among Scotland's leading public schools. S. Bride's and S. George's are public schools for girls.

Edinburgh is a banking and insurance centre, while much business comes from its official, legal and educational interests. Printing and publishing are leading industries. Others are brewing, distilling, the making of chemicals and biscuits, and the preparing of rubber. Race meetings are held, and the Scottish Rugby Union has a fine ground at Murrayfield.

In the 18th century Edinburgh was a great intellectual centre, and this tradition has never been lost. In 1802 *The Edinburgh Review* was started here, Sydney Smith being the first editor, and it was an influential organ until it ceased publication in 1929.

The University of Edinburgh dates from 1583. The main buildings occupy the site of Kirk o' Field, but others have been erected elsewhere for medical, scientific and other activities; the medical school has a very high reputation.

Edinburghshire Alternative name for the Scottish county of Midlothian (q.v.).

Edison Thomas Alva. American electrician and inventor. Born at Milan, Ohio, U.S.A., Feb. 11, 1847, of mixed Dutch and Scottish descent, in early life he was a telegraph operator. From 1871-76 he was Superintendent of the Law Gold Indicator Co. His inventive genius soon showed itself in the series of experiments he made with regard to the improvement of electrical transmission. His inventions include an automatic telegraph system, the quadruplex and septuplex telegraph, the micro-tactimeter and many others, covering over a thousand patents. He improved the phonograph and kinetograph, and introduced the aerophone and megaphone for amplifying sounds. Incandescent lamps, electric lighting and electric railways owe much to him. He died Oct. 18, 1931.

Edmonton Urban district of Middlesex. It is 8 m. from the centre of London, and has two stations on the L.N.E. Ry., Upper Edmonton and Silver Street. The River Lea passes through the district. Charles and Mary Lamb are buried in the parish church. Cowper and Keats both lived here, the former celebrating the Bell Inn in *John Gilpin*. Pop. (1931) 77,652.

Edmonton City and capital of Alberta, Canada. An important point on the transcontinental railway system, and the banking and distributing centre for a large district, it stands on the N. Saskatchewan River, 793 m. from Winnipeg and 958 from Prince Rupert. The city now includes Strathcona. It has huge meat packing plants and some manufactures. Pop. (1931) 78,329.

Edmund English saint and king. In A.D. 855 he became King of E. Anglia. In 870 he was taken prisoner by the Danes and, refusing to abandon the Christian faith, was put to death at Hoxne, Suffolk. Later his remains were buried at Bury, which city grew up round his shrine and was named after him Bury St. Edmunds. He was made a saint, his day being Nov. 20.

Edmund English saint, known as Edmund Rich. He was born at Abingdon and became a priest. In 1234 he was appointed Archbishop of Canterbury, and for seven years worked to free the land from the rapacious favourites of Henry III. In 1240 he left the country and died in France, Nov. 16 of that year. He was canonised in 1246 and his day is Nov. 16. He is commemorated by S. Edmund's College at Ware.

Edmund King of the English. Born about 922, a son of Edward the Elder and a grandson of Alfred the Great. In 940 he became king, and reigned for six years, defeating the Danes and conquering Cumbria. He was murdered at Pucklechurch, Gloucestershire, May 26, 946.

Edmund King of the English, called the Unready. A son of Ethelred the Unready, he was born about 981, and succeeded his father in 1016, but only reigned seven months, dying or being murdered on Nov. 30, 1016. He won some fame by fighting against the Danes, but, beaten at Assandun in Essex, agreed to divide the kingdom with Canute.

Edom District in the south of Palestine. Between the Dead Sea and the Akabah Gulf, it is a narrow, mountainous strip, 100 m. long. Its inhabitants, traditionally related to Esau, resisted the passage of the Israelites to Canaan, and were often at feud with Saul and his successors. Romanised as Idumaen, it accepted Judaism under the Maccabees. The Herods were Edomites.

Education Term in general use for physical training, especially of the young. It comes from a Latin word meaning to draw out. There was some education in the ancient civilisations, but it was never general and was almost certainly under priestly direction. Modern education began with the Greeks, whose system freed the human mind and introduced ideas which have profoundly influenced human thought. No later age has approached them in their power of dealing with those branches with which they were familiar. Greek education greatly influenced Roman education, and thus communicated its ideas to the medieval and modern worlds.

With the establishment of Christianity in Europe, education became the province of the Church and owing to the close association of the Church with Rome, Latin was used as the vehicle of thought. The combination of the Latin language and the Christian Church survives to some extent in the public school system of to-day. The Church was responsible not only for the early schools but for the early

universities. Education was given by monks in schools connected with the monasteries, but the bulk of the boys and practically all the girls received no education.

The Renaissance gave a great impetus to education and the 15th and 16th centuries witnessed the founding of many universities and schools, but education remained in the main as before.

In the 19th century, however, education was taken over by the State. Made universal and largely secular, it was given to women in the same way as to men; it included a number of new subjects, largely the outcome of scientific and industrial developments. Elementary education was distinguished from secondary. Technical education was introduced. The old universities were thoroughly reorganised, and new ones were created. Education seemed to take the place of religion, at least in W. Europe, as the nations' driving power.

In Great Britain education was made compulsory by an Act of 1870, and schools, called board schools, which later became council schools, were set up by the side of the existing church schools, a rate being levied for their support. For the wealthier classes, the public schools for boys increased in number and size, and some were opened for girls. In 1891 education in the elementary schools was made free. In 1902 the Church schools were given assistance from the rates. In 1918 the school age was raised to 14, and in 1930 to 15, but the latter did not come into force.

EDUCATION AND THE CHOICE OF A CAREER. In most cases the choice of a career will be influenced, or decided, by the opportunities and the means available, but even within these limitations the choice to-day is so wide, and competition so keen, that it is necessary that a decision should be reached before formal schooling comes to a close, so that the boy or girl may, in the later stages, pursue the course which will give the best training and equipment for future work. This is the more necessary as most of the "professions" can only be entered after years of study on recognised and definite lines, while some training is necessary for any vocation in which success is desired.

Specialised study for a particular career often begins before the child has gained the knowledge and experience necessary to decide its own future, and decisions taken by the parent alone often lead to unhappiness and failure. The wise father, therefore, will be considering his child's career from the early school days, will discuss the matter with the child's teachers, and by continuous observation and the application of our modern knowledge of vocational guidance will be ready to recognise such indications of a definite "bent" as may appear.

This does not mean that children should begin specialised study early in their school days. A sound general education is indispensable and should be continued as far as the means of the parent will permit, with an allowance for the period of special training—short or long according to the career chosen—which is essential before the boy or girl can become self-supporting.

The Elementary School.—Education between the years of five and fourteen is compulsory in this country, but there are several avenues by which this may be obtained and continued. After the Nursery Schools, which are a comparatively new development for the period up to the end of the fourth year, the poorer child will proceed to the Elementary School and

thence in some cases to the Secondary School or to the newly established Central or "Modern" School, where it will remain until it is fifteen or older. Facilities are provided at this stage for further technical and commercial training, and evening classes may be attended after the day's work is done.

The Secondary School is reached from the Elementary School at the age of eleven or after, or the child may begin by attending one of the "Kindergartens" attached to the Secondary Schools. Scholarships are now freely obtainable by examination which will pay the full fees for secondary education to the age of nineteen, and in special cases some contribution towards maintenance. Full particulars regarding both Elementary and Secondary Schools and the fees required at the latter can be obtained from the offices of the local Director of Education. The majority of schools for further education in Scotland are free.

Preparatory Schools.—The child whose parents can afford for it a Public School education will usually begin in either a private or a preparatory school. There are many of these, and a list with full particulars of each will be found in the handbook—*Schools of England, Wales and Scotland*, which is published by Messrs. E. J. Burrow, 43 Kingsway, London, W.C. 2.

The choice of a preparatory school for boys is nearly always governed by the public school to which he is afterwards to go. In choosing a private school, it is well to take into consideration its proximity to the child's home—whether he is to be a boarder or a day scholar—the position of the school from a health point of view; the qualifications of the teachers; and the size of the classes.

Classes in private schools are smaller than those in the ordinary council schools, consequently more attention can be given to individual children. There is a belief that private schools are inefficient, but there are many excellent private schools. Parents should ask whether the Principal is a Registered Teacher, and should inquire closely into the health conditions—sanitation, ventilation of rooms, and the like.

Children are accepted in preparatory and private schools at five to seven years of age, and they usually remain until they are twelve or thirteen, but some private schools provide education up to sixteen.

The cost of sending a child to a preparatory or private school may range from £70 to £200 per annum, according to the standing of the school. This includes board. Entrance is gained by letter to the headmaster.

Public Schools.—For entrance to most of the public schools it is necessary to arrange the matter many years before the child is ready, since in many cases there is the formality of being elected. The age for entrance to a public school is usually from 12 to 14 years, and the leaving age is about 18 to 19.

A list of the public schools in the United Kingdom will be found in *The Public Schools Year Book*, which is published by The Year Book Press, 31 Museum Street, London. This also gives a complete list of scholarships to both public schools and universities and a list of "specialising" schools, at which certain subjects are given particular attention.

The cost of sending a child to a public school varies from about £250 per annum (entrance fee, £20; school fee, £75; house fees, £155) to £180 all in.

Secondary education may cease after the

First School Certificate has been taken at the age of sixteen or seventeen, or it may continue for a further two years in order that the Higher Certificate may be obtained. After leaving school specialised training may take the form of an apprenticeship or attendance at Business, Technical or Training Colleges, in some of which a degree may be taken for such purposes as teaching.

The Universities.—Further formal education may be obtained at one or other of the "finishing schools" at home or abroad, but the usual procedure after taking the Higher Certificate (in Scotland, after the "Preliminary Examination") is to enter a university.

Every university in the country publishes an annual "calendar," which contains full particulars of entrance, scholarships and tuition. This can be obtained by writing to the Heads of the separate colleges in the case of Oxford and Cambridge, or to the Registrar of the other universities.

The cost of a University Course varies very widely, from about £30 per annum for tuition only at the smaller universities to a minimum of £250 per annum for tuition and full maintenance during term time at Oxford and Cambridge.

It is essential at this stage to have definite ideas on the intended career, since, besides the subjects to be studied, the choice of a university will depend upon it. Thus certain branches of engineering and applied science are best taken at a provincial university. Oxford and Cambridge offer courses leading to higher posts in the Civil Service, in teaching, and in the Church, besides giving preliminary training in medicine, law and certain technical branches, such as engineering, forestry and agriculture.

Education Board of. In England and Wales a body set up in 1899 to control education. It took over the duties formerly discharged by a committee of the Privy Council. Its president is a member of the Cabinet and it has a large staff of inspectors and other officials. The offices are in Whitehall, London.

For supervising education in Scotland there is a department under the Secretary of Scotland at 14 Queen Street, Edinburgh. Each of the self-governing parts of the British Empire has an education department. In most foreign countries education is controlled by a department of State.

Edward Lake of Africa, formerly known as the Albert Edward Nyanza. It is in E. Central Africa and was discovered by Stanley in 1889. It is 44 m. long; a channel connects it with Lake George to the north-east.

Edward King of the English, called the Elder. A son of Alfred the Great, he was born about 870 and early began to help his father in the work of government. In 899 he was chosen king and he reigned until 924. He was successful in enlarging his kingdom which stretched north to the Humber and both the Danes in Mercia and the Welsh submitted to him.

Edward King of the English, called the Martyr. Born about 963, he was a son of King Edgar. When Edgar died in 975, Edward was crowned by Dunstan, but three years later he was murdered, March 18, 978, at Corfe Castle, by order of his step-mother, Elfrida, who wanted her own son Ethelred to be king. Edward's tomb at Shaftesbury became a place of pilgrimage, and he was regarded as a saint, his day being March 18.

Edward King of the English, called the Confessor. A son of King Ethelred the Unready, he was born in 1005. From 1013 to 1041 he lived in Normandy. In 1041 he crossed over to England and was chosen king in succession to his half-brother, Hardicanute. He reigned for 25 years, devoting most of his time to religious matters. He built the first abbey at Westminster. He died Jan. 5, 1066, and was canonised in 1161. His day is Oct. 13.

Edward I. King of England. Born at Westminster, June 17, 1239, he was the eldest son of Henry III. He fought against the rebellious barons, who took him prisoner at Lewes in 1264. He escaped from Hereford by a trick, and in 1265 defeated Simon de Montfort at Evesham. Later he went on a crusade and during his absence in 1272 became king.

Edward returned to England in 1274. His reign of 35 years marks him as a strong and wise ruler. He conquered Wales and Scotland, but won his most enduring fame by calling the Model Parliament of 1295, and by his improvements in the laws and legal system. He died at Burgh-on-Sands, while marching to deal with a rising in Scotland, July 7, 1307. Edward's first wife was Eleanor, daughter of the King of Castile, to whom he erected memorial crosses in several towns. His second wife was Margaret, daughter of Philip III. of France.

Edward II. King of England. The son of Edward I., he was born at Caernarvon, April 25, 1284, and was created Prince of Wales in 1301, being the first English prince to bear that title. Coming to the throne in 1307, he made peace at once with Scotland, and in 1308 married Isabella, daughter of Philip IV. of France. His reign of 20 years was marked by the dominance of favourites and the consequent revolts of the nobles. After the Battle of Bannockburn in 1314, Thomas, Earl of Lancaster, secured control of affairs. He was put to death in 1322 and the king's next favourites, the Despencers, were supreme for a time. Their overthrow was due to the queen, who collected some followers in France and landed in Suffolk. The king was deposed and, on Sept. 21, 1327, was murdered in Berkeley Castle. His young son, Edward III., succeeded him.

Edward III. King of England. A son of Edward II., he was born Nov. 13, 1312. He became king in Jan. 1327, and in 1330 he put a quick end to the usurped authority of his mother Isabella and Roger Mortimer. His reign of 50 years was chiefly occupied with the French war and was marked by the victories of Crécy and Poitiers. The Treaty of Brétigny gave him extensive possessions in France. In 1328, he married Philippa of Hainault. Their family included the Black Prince, who died before his father, and the Dukes of Clarence, York and Lancaster. Edward died June 21, 1377.

Edward IV. King of England. He was born at Rouen, April 28, 1442, and was the eldest son of Richard, Duke of York. He early began to fight for the Yorkists, and in 1460, on his father's death in battle, became their leader. After his victory over the Lancastrians at Mortimer's Cross, in 1461, he became king. In 1469, owing to the desertion of the Earl of Warwick, his mother's brother, his position became precarious and he left England, but soon returned and crushed his foes at Barnet

and Tewkesbury. In 1464 Edward married Elizabeth Woodville. He died April 9, 1483.

Edward V. King of England. Born at Westminster, Nov. 2, 1470, he was son of Edward IV. and Elizabeth Woodville. In April, 1483, he became king, with his uncle, the Duke of Gloucester, afterwards Richard III., as his guardian. With his brother he was imprisoned in the Tower, where they were both murdered. Their remains, discovered in the time of Charles II., were removed to Westminster Abbey.

Edward VI. King of England. Born at Hampton Court, Oct. 12, 1537, he was the son of Henry VIII. and Jane Seymour. He became king in Jan. 1547, and reigned for six years. During that time the country was ruled first by the Duke of Somerset, the king's uncle, and then by the Duke of Northumberland. The chief event was the establishment of the Protestant religion. Edward died at Greenwich, July 6, 1553.

Edward VII. King of Great Britain and Ireland. Born at Buckingham Palace, Nov. 9, 1841, he was the eldest son and second child of Queen Victoria and Albert of Saxe-Coburg, and was named Albert Edward. He passed some time at the Universities of Edinburgh, Oxford and Cambridge, and travelled a good deal. He was created Prince of Wales and Duke of Cornwall soon after his birth and these titles he held for nearly 60 years.

In 1863 Albert Edward married Alexandra, daughter of the prince who afterwards became King Christian IX. of Denmark. They lived at Marlborough House, London, and in Norfolk, on an estate at Sandringham bought for the Prince. On account of the queen's retirement, the Prince and Princess of Wales were for nearly 40 years the acknowledged leaders of English society. The Prince entered into every form of social activity, his love of the turf being notable, and made the acquaintance of most of the leading men in Europe, but his mother did not allow him to take any considerable share in affairs of State. In 1871 he had a serious illness, typhoid fever; in 1875 he visited India. On Jan. 22, 1901, the Prince became King and Emperor, taking the name of Edward VII. His coronation, postponed from June 26, 1902, owing to an attack of appendicitis, took place on Aug. 9, 1902. His short reign was marked by a keen interest in foreign affairs, which showed itself especially in earnest efforts to preserve peace. He went abroad a good deal and his relations with France were especially friendly. He discharged his many kingly duties with the tact and dignity which were his outstanding qualities, but one or two events in domestic politics caused him keen anxiety. In April, 1910, the King was taken ill with bronchitis and died in London on May 6. He was buried at Windsor, and many memorials to him have been erected. His life has been written by Sir Sidney Lee. The King left four children, George V. and three daughters, Princess Louise, Duchess of Fife; Princess Victoria; and Princess Maud, Queen of Norway. Of two other sons, the Duke of Clarence died in 1892, and Prince John died the day after he was born in 1811.

Edward English prince, called the Black Prince. The eldest son of Edward III., he was born at Woodstock, June 15, 1330. He was made Prince of Wales in 1343 and fought at Crécy. Most of his time was passed fighting in France, where his father

handed over to him the province of Aquitaine. He was at Poitiers and led an expedition into Spain in 1367. In 1371 he returned to England and took some part in public affairs, until on July 8, 1376, he died at Westminster. He married in 1361 Joan Holland, "the fair maid of Kent," and left a son, later Richard II.

Edward Prince of Wales. The eldest son of George V., he was born at Richmond, June 23, 1894. His full name is Edward Albert Christian George Andrew Patrick David. He went to the Royal Naval Colleges at Osborne and Dartmouth, and in 1913 entered Magdalen College, Oxford. On June 23, 1910, he was created Prince of Wales and invested at Caernarvon. In 1911 he was given the Order of the Garter, and in 1918 he took his seat in the House of Lords as Duke of Cornwall. Between 1914 and 1918 he served in various theatres of the Great War. In the years after the Great War he travelled widely, but also found time for a great number of public duties. He went to Canada, India and Japan; then on a tour to Australia and more than once to Africa for hunting. In 1930-31 he visited S. America and opened the exhibition at Buenos Aires, giving on his return his impressions to business men of trade openings in S. America.

The Prince takes a keen and continuous interest in many forms of national activity. He follows the fortunes of his agricultural estates in the west and has himself bought a farm at Lenton, near Nottingham, and a ranch in Canada. He is fond of flying and has his own aeroplane and landing ground at his residence, Fort Belvedere, in Windsor Forest. He hunts in the midlands and plays a good deal of golf. The numerous journeys which he makes to attend public functions and meetings testify to his interest in the welfare of the people. In addition to the many positions which are his by hereditary right he holds two recently created for him, Master of the Merchant Navy and Fisheries, and Visitor of the Oxford Society.

Edward Medal Medal given for heroism in civil life. It dates from 1907. The ribbon is dark blue with a narrow yellow edge. The medal, which bears the figure of its founder, King Edward VII., is chiefly given to miners and quarrymen and bars are added for further heroic actions.

Edwards Alfred George. Welsh prelate. Born Nov. 2, 1848, he went to Jesus College, Oxford, and was ordained. In 1875 he was chosen head master of Llandyffrow College, in 1885 Vicar of Carmarthen, and in 1889 Bishop of St. Asaph. He took a leading part in the campaign against the disestablishment of the Church in Wales, and when it was effected was chosen the first archbishop under the new conditions.

Edwards John Passmore. English philanthropist. Born in Cornwall, March 21, 1823, he was the son of a joiner. In 1845 he settled in London and worked for many years as a journalist. From 1876 to 1896 he was owner of the *Echo*, and from 1880-85 a Liberal M.P. He died April 22, 1911. Edwards is chiefly known as the founder of libraries, settlements and the like. The Passmore Edwards Settlement is now incorporated with the Mary Ward House at Tavistock Place, London, W.C.1.

Edwin King of Northumbria. A son of Ella, King of Deira, he was born about 585 and became king in succession to his

father. Driven out by the King of Bernicia, in 617 he returned, killed his foe in battle, and united Bernicia and Deira into the Kingdom of Northumbria. He married Ethelburga, daughter of the King of Kent, and in 627, under her influence and that of Paulinus, became a convert to Christianity. He was killed in battle at Hatfield Chase, Yorkshire, Oct. 12, 633, when fighting an army led by Penda, King of Mercia. Edinburgh was founded by and named after him.

Eel Family of soft-rayed fishes with long, snake-like bodies. They lack ventral fins and external scales. Their life history is still something of a mystery. Widespread in temperate fresh water, the common European eel, *Anguilla vulgaris*, is greenish-brown, and silvery beneath. The female, which angers call the sharp-nosed, measures 3 to 4 ft., the male, called the broad-nosed, being much smaller. The females inhabit rivers and ponds, descending seawards in the autumn, sometimes overland, for spawning in mid-ocean; the sea-dwelling males do not return. The eggs produce tiny ribbon-like creatures, once separately named *Leptocephalus*, or glass fishes, and now proved to be the larval forms from which eelers or eel fry are derived. In Great Britain there are close seasons for eelers and mature eels. See CONGER.

Eel Grass Popular name of two diverse genera of aquatic herbs. *Zostera marina*, usually called eel grass in the U.S.A., grows on gently sloping shores in temperate regions. It serves as a non-conductor wrapped in burlap, in artificial refrigeration. *Valisneria spiralis*, or water celery, grows in the warmer parts of both hemispheres. It is a short-stemmed plant, often cultivated in aquaria. Its thread-like flower-stalks, coiling spirally, draw the flowers under water to mature the fruit. The canvas-back duck and the terrapin eat it.

Eel Pie Island Small island in the Thames opposite Twickenham. It is a popular resort for picnic and boating parties, and an angling centre.

Effigy Figure or likeness. The term is used chiefly for the head of a sovereign or other person on a coin. It is also applied to the figures sculptured on tombs. Another effigy is the figure of a detested person made in order to be burned, e.g., Guy Fawkes.

Effusion A pouring forth. The term is used in pathology for an escape of a fluid into the tissues or cavities of the body, as seen in wet pleurisy. Effusion also results from inflammation and occurs in dropsy.

Egbert King of Wessex. The son of a king of Kent, he passed part of his youth at the court of Charlemagne. In 802 he was chosen King of the W. Saxons. During his reign of 37 years he conquered Mercia and other parts of England, and was the first king who was recognised by the whole country. He died in 839.

Egeria Legendary nymph in Roman mythology. Her counsel and advice were said to have aided and influenced Numa Pompilius, King of Rome. Her lamentations after the death of Numa having disturbed the rites of Diana, she was changed into a spring. To-day Egeria is a name symbolising any woman who gives mental stimulus and assistance to a man in his work.

Egg Body usually oval produced by birds, insects, reptiles and certain other

creatures to reproduce their kind. Eggs are produced by the female after fertilisation by the male. Though all animal life, except the very lowest forms, starts in the egg, in the case of nearly all mammals (the platypus is a notable exception) the development of the egg takes place within the mother.

Eggs are laid by snails, shell fish and other molluscs; also by insects and fishes. Most of the reptiles, including crocodiles, lay eggs, as do all the birds. Many eggs are enclosed in a hard shell, but those of fishes, frogs, etc., that are laid in the sea and wet places, are not.

The most familiar kind of egg is that laid by the bird. These eggs vary much in size and colour, but all possess the hard shell. The largest are the eggs of the ostrich. In many cases the colouring is protective. The collecting of birds' eggs is a popular hobby. In Britain the law forbids the taking of the eggs of wild birds at certain seasons.

The egg of the ordinary fowl is a popular and nutritious article of food and millions of fowls are kept in order to lay eggs for the market. To a much lesser extent the eggs of the duck, the goose and the plover are used for food, but the sale of plover's eggs has now been forbidden by law. In 1932 the eggs of the penguin were introduced into London restaurants.

In England the consumption of eggs is estimated at 170 per person per year, and in 1929 eggs to the value of over £17,766,530 were imported into Great Britain, in addition to dried and liquid eggs valued at £2,718,800. At Milford, Surrey, is a farm where, under the auspices of the National Utility Poultry Society, egg laying tests are held, to determine the laying qualities of the various breeds. Under the national marking scheme imported eggs must be marked with the name of the country of origin.

Egglesstone Village of Yorkshire (N.R.). It stands on the Tees, a mile from Barnard Castle. The beautiful cruciform church was once part of Egglesstone (or Eggstone) Abbey. Near is Rokeby Hall.

Egham Urban district of Surrey. It is 21 m. from London by the S. Rly. The church has associations with the Denham family. The Royal Holloway College for women is here. Pop. (1931) 15,915.

Eglantine Poetic name for the sweet briar (*Rosa rubiginosa*). It is of bushy growth, the branches being thickly set with hooked prickles and bristles; the flowers are small and pink, and the foliage fragrant. It is largely grown in gardens, and is also found wild in some parts of Britain. The name is sometimes applied to the Austrian briar (*Rosa eglanteria*).

Eglinton Village of Ayrshire. It is 2 m. from Irvine and gives the title of earl to the family of Montgomerie. In 1508 Hugh Montgomerie was made Earl of Eglinton and the title has been since held by his descendants. Archibald, the 13th earl, was made Earl of Winton, and the present earl holds the double title. The earl's eldest son is called Lord Montgomerie. Eglinton Castle, the family seat, was built about 1800.

Egmont Count of. Flemish nobleman. Born in Hainault, Nov. 18, 1522, he was baptized as Lamoral, became a soldier and saw service with Charles V. Later he served Philip II. of Spain, the ruler of the Netherlands, as an ambassador and was made Governor of Flanders. In 1567 he was arrested

by Alva and sentenced to death. With Count Horn he was beheaded at Brussels, June 5, 1568.

Egmont Earl of. Irish title held by the family of Perceval. It was given in 1733 to Sir John Perceval, Bart (1683-1748), an M.P. and one of the founders of the colony of Georgia. John, the 2nd earl (1711-70) was First Lord of the Admiralty, 1761-66, and was the father of **Spencer Perceval**, the Prime Minister. **Frederick**, who was born in 1873, lived for years as a rancher in Canada, until he succeeded as 10th earl in 1929. He died from the effects of a motor accident on May 16, 1932, leaving an only son. The family seat is Avon Court, Ringwood; formerly it was Cowdray Park, Midhurst. **Egmont** is a village in Co. Cork, Irish Free State.

Egoism Theory of self-interest or selfishness. An egoist is a person who aims at securing profit or pleasure for himself regardless of the interests or feelings of others. In philosophy, it is the doctrine that we have no knowledge of anything save our own existence. A similar word, *egotism*, means talking or thinking inordinately about oneself.

Egremont Town of Cheshire. A residential suburb of Liverpool and Birkenhead, it stands on the Mersey, 2 m. from Birkenhead, with which it is connected by railway. Steamers go regularly across the Mersey to Liverpool, and there is a promenade to New Brighton.

Egremont Market town and urban district of Cumberland. It stands on the Ehen, 5 m. from Whitehaven. Coal and iron ore are mined. Pop. (1931) 6015.

The title of **Earl of Egremont**, borne by the family of Wyndham from 1749, became extinct when the 4th earl died in 1843. The 3rd earl, who died in 1837, left Petworth House and his estates in Sussex to a natural son who was made Lord Leconfield in 1859.

Egret Various species of small white herons, with long, narrow, loose-webbed plumes. Both the great white heron and the little egret, a rare British visitant, populate inland waters, especially in India, and are also found in S. Europe and Asia, from Spain to Japan.

Egypt Kingdom of Africa. Divided into upper, middle and lower Egypt, and predominantly the land of the Nile, it covers about 363,000 sq. m., but the only fertile area is that through which the great river flows, some 13,600 sq. m. The population, mainly concentrated in this area, is 14,200,000. Cairo is the capital and the largest city; Alexandria is next in size. Other places are Port Said, Suez, Tanta and Mansura. The chief towns and ports are linked by railway. On the east are the Red Sea and Suez Canal; on the west is the desert; to the south is the Sudan, and to the north the Mediterranean.

GOVERNMENT. In 1922 Fuad, formerly a sultan ruling under British protection, was declared king. There is a constitution on the European model. The parliament consists of a Senate and a Chamber of Deputies, and the Ministry is responsible to it. The members of the chamber are elected by universal suffrage for five years. In 1928 King Fuad suspended the constitution and ruled for a time through his ministers alone.

The State religion is Mohammedanism, but there are many native Christians, chiefly Copts. The official language is Arabic. The country has its own courts of justice, but foreigners are exempt from their jurisdiction.

ECONOMICS. The chief product is cotton. By means of irrigation works, the dam at Assuan and barrages at Assiut, Esna and Zifta, much additional land has been brought under cultivation. The value of the cotton crop varies, but in 1928 its export was worth over £45,000,000, other articles being responsible for a further £11,000,000. Wheat, barley and other cereals are grown and animals are kept, but everything is subservient to cotton growing.

The unit of currency is the piastre, worth about 2½d. It is coined in silver, bronze or nickel. A national bank issues paper money and there is an agricultural bank. The ardeb, the unit of capacity, is equal to 43,555 gallons. The unit of measurement is the feddan, equal to just over an acre.

Egypt has an army about 14,000 strong. To protect the Suez Canal, Great Britain maintains a small garrison including an air force. Egypt has a debt of about £90,000,000.

ARCHAEOLOGY AND HISTORY. Egypt is famous as perhaps the earliest home of civilisation, the best known remains of which are the pyramids, but there are also remains of temples and other buildings that prove the possession, thousands of years ago, of a wonderful artistic skill, to say nothing of a truly marvellous knowledge of building and engineering. The magnificent temple remains at Karnak and the discoveries in the tomb of Tutankhamen are some of the many evidences of this culture.

The ancient Egyptians had, too, a religion with elaborate rites and strong in the beliefs in the immortality of the soul, and an extensive literature, written on rolls of papyrus. They knew something of the arts of government and war, and their knowledge of the industrial arts is also worthy of note.

Egyptian civilisation may have begun 8000 years before Christ; perhaps a little later. Scholars have divided its course into civilisations first, second, third, etc., and have arranged its rulers in dynasties, also numbered. The first civilisation was prehistoric; the continuous written history of Egypt begins with the second. At this time Memphis was the country's capital.

The third civilisation, dating from about 5600 B.C., covered the periods of the first three dynasties of the kings. It was an age in which art flourished exceedingly, but in this respect it was far surpassed by the fourth civilisation. In this the great pyramids were built and the country was rich and prosperous. Egyptian art now reached its highest point and probably only one age in the world's history, that of Greece in the time of Pericles, can compare with it in the magnificence and volume of its works of art.

Decay began about 3600 B.C. with the fifth civilisation, during which the Syrians invaded the land. More serious was the arrival of the Hyksos, a people who dominated Egypt for about 1000 years. They were expelled by Aahmes about 1600 B.C., the time from which the sixth civilisation dates. Constant wars with Syria, although sometimes successful in bringing more territory under Egyptian rule, greatly weakened the country's power. There was, however, much trading activity, especially with Greece. During the seventh civilisation, which dates from 664, the Persians conquered the land and soon Alexander the Great repeated this feat. The last of the dynasties (XXX.) ended in 340.

For the next 300 years Egypt was under the rule of the Ptolemies and Greek influence was strong until the death of Cleopatra, the last

of her line. In 30 B.C. Egypt was included in the Roman Empire and it remained subject to Rome or Constantinople until A.D. 616.

In 641 it was conquered by the Arabs, and was under the caliphs of Bagdad until 868. A disturbed period without stable government followed until in 1517 it was subdued by the Ottoman Turks. It remained a province of Turkey until seized by Napoleon in 1798. Mehemet Ali became ruler in 1805 and his descendant is now on the throne.

Mehemet and his successors were vassals of Turkey and were called Khodives from 1807 until 1914, when the title of sultan was used by Hussein Kamil, brother of Fuad. Their misrule led Great Britain to invade Egypt in 1882, and from then until 1914 the country's affairs were controlled by British officials. In 1914 the British made Egypt into a protectorate and this lasted until 1922, when the country was granted its independence.

Egyptology Study of Egyptian antiquities. Material and literary treasures, unearthed in the Nile valley and elsewhere, have reconstructed the artistic, economic, literary, social, political and religious life of ancient Egypt. The Egypt Exploration Society, founded in 1882, the British School of Archaeology in Egypt, founded in 1896, and other learned societies and universities, pursue this branch of research.

Ehrenbreitstein Town of Germany. On the right bank of the Rhine, opposite Coblenz, it stands on a rock overlooking the Rhine and Moselle in a position that has been fortified since Roman times, and has a trade in wine. It was taken by the French and destroyed in 1799, rebuilt 1816-26 and modernised after 1870. Until 1918 it was one of Germany's strongest fortresses. Pop. 5500.

Ehrlich Paul. German bacteriologist. Born in Silesia, March 14, 1854, he studied medicine, and did research on aniline dyes. He treated diseases by chemical infections, and in 1910 prepared an arsenical compound, "salvarsan," or "606" (the 606th compound he had tried), which was a cure for syphilis. He did important work on immunity, and shared the Nobel Prize for Medicine in 1908. He died Aug. 20, 1915.

Eider Duck (*Somateria*). Genus of northern sea ducks which use their nests with down. Dwelling on N. Atlantic coasts, the common eider duck, *S. mollissima*, lays green eggs in nests on the ground. The down, valued for stuffing quilts and cushions, is collected in Iceland and other localities where the bird is practically domesticated. It breeds in the Farn Islands.

Eiffel Alexandre Gustave. French engineer. Born at Dijon, Dec. 15, 1832, he was one of the first engineers to use compressed air caissons for building bridges and the inventor of movable section bridges. His most important works include the bridge over the Garonne at Bordeaux in 1858, the dome of the Nice Observatory, the framework of the Statue of Liberty in New York Harbour and the Eiffel Tower, Paris, designed for the Exhibition of 1889. This colossal iron structure, 984 feet in height, is fitted with electric lifts and is used as a meteorological and broadcasting station (1445.7 M.; 13 kW.). Eiffel died Dec. 28, 1923.

Eigg Island of the Inner Hebrides, Scotland. It is in the county of Inverness-shire, and lies about half-way

between the Island of Rum and the mainland; it is 6 m. in length. The Scur of Eigg, a hill in the south of the island, is 1289 feet in height. Pop. 181.

Einstein Albert. German scientist. He was born at Ulm, May 14, 1879, and educated at Munich and Zürich. After being engineer to the patent office in Bern, he was appointed Professor at Zürich University in 1909. In 1914 he moved to Berlin. A remarkable tower was built at Potsdam for him to work in, and in 1915 he brought his famous theory of relativity before the Academy of Sciences in Berlin. In 1921 he was awarded the Nobel prize for physics and visited England; he received the Copley Medal in 1925, the gold medal of the Royal Astronomical Society in the following year, and also honours from various other countries. In 1931 he lectured on his theories at Oxford.

The main ideas put forward by Einstein are that time is a co-ordinate of space, that distances in the universe are relative, not absolute, and that the universe itself is constantly expanding or contracting in size. He became a prominent pacifist and Zionist.

Eisenach Town of Thuringia, Germany. It stands at the junction of the Hörsel and Nesse, 32 m. west of Erfurt and close to the Thuringian Forest. Spinning, wagon building and the manufacture of beer, cigars and pottery are the chief industries. Near is the Wartburg associated with Luther. Until 1918 the palace was the residence of the Duke of Saxo-Weimar-Eisenach. Pop. 43,400.

Eisleben Town of Germany. It has a school of mining and is the chief centre of the neighbouring copper and silver mines. Luther was born here, and the house in which he died is now a museum. Pop. 25,000.

Eisteddfod Welsh bardic congress. It is held annually in different towns for encouraging national music and literature. Sprung from the Gorsedd or National Assembly, it is mentioned in early records. It was held in 1567, reappeared occasionally, after 1771, and has been held almost annually since 1819. It usually lasts three or four days. The chief bard is chosen and crowned, and prizes are awarded for choral singing, instrumental playing, especially harping, and lyrical compositions and essays.

Ekaterinburg Town of Soviet Russia. 175 m. from Perm, on the Trans-Siberian Rly. It was founded by Peter the Great and named after his wife Catherine. It is a great mining centre. There are two cathedrals and a university, founded in 1920. Here, on July 16, 1918, the Tsar Nicholas II. and his family were murdered. The Soviet authorities have changed the name to Sverdlovsk. Pop. 60,000.

Ekaterinoslav City of the Ukraine, now known as Dnepropetrovsk (q.v.).

Elam Name used in the Bible for a district in S. Persia. Its capital was Shushan or Susa. Its people carried on war with the Assyrians, who conquered them in 644 B.C. Before this Elam appears to have been an independent kingdom and its people to have reached a high degree of culture.

Elan River of S. Wales. Only 15 m. long it rises in Cardiganshire and flows into Radnorshire and Brecknockshire before it joins the Wye below Rhayader. The valley

has been dammed, and three huge reservoirs built to hold the water from which Birmingham draws its supply.

Eland Genus of large African antelopes (*Taurotragus*). The largest, also called the Cape elk, has a tufted forelock and sometimes stands nearly 6 ft. at the withers. The screw-like horns occur in both sexes. Except on small reserves in Natal the eland has disappeared from S. Africa. Herds still roam north of the Zambesi and other species are found further north.

Elandslaagte Village of Natal. It is 16 m. from Ladysmith. On Oct. 21, 1899, a British force under Sir John French sallied out of Ladysmith to attack a Boer position in the hills near Elandslaagte, which was taken with a loss to the British of about 40 men; the Boers lost some 250.

Elasticity Term used in physics. It expresses a property of matter whereby a substance may be elongated by tension without remaining permanently distorted after the removal of the tensile force. That is, the cohesion between the constituent particles of an elastic substance is sufficient to prevent permanent strain or distortion, and consequently the particles return to their original positions. Both elasticity of form, or resistance to change of shape, and elasticity of bulk, or resistance to compression, are properties of solids; but liquids, having no shape, can only resist compression, a property shared in a high degree by gases.

Elba Island of the Mediterranean Sea. It belongs to Italy, covers 90 sq. m. and is 6 m. from the mainland at Piombino. Porto Ferrajo is the capital. Many of the inhabitants are fishermen. Here Napoleon lived in exile, May, 1814, to Feb., 1815. Pop. 30,500.

Elbe River of Europe. It rises in the Riesengebirge Mountains of Bohemia, passes into Saxony, and enters the North Sea near Cuxhaven. It is 725 m. from source to mouth and its estuary is 70 m. long. On it are Prague, Dresden, Magdeburg and Hamburg and it is navigable for small vessels nearly as far as Prague, about 500 m. from its mouth. Much shipping passes along its lower course. The chief tributaries are the Havel, Saale, Moldau, Eger and Mulde and it is connected by canal with the Oder, Trave and other German rivers.

Elberfeld Town of Germany. In the Rhine province of Prussia, it stands on the Wupper, 16 m. from Dusseldorf, recently linked with Barmen, is locally called Wuppertal-Elberfeld. An important railway centre, its textile industries have caused it to be named the Manchester of Germany. Other products are chemicals and hardware. Pop. (1930) 405,515.

ELBERFELD POOR RELIEF SYSTEM. Elberfeld gives its name to a system of poor relief which was started here. This consists in a careful examination of each case by unpaid workers who report to a central committee. For cases of emergency there are almoners who can give immediate assistance. A town is divided into districts for the purpose and the scheme tries to avoid making paupers by assisting the poor in ways other than by gifts of money. Started in 1852 the system has spread to other towns.

Elbing Seaport of E. Prussia, Germany. It stands on the Elbing, near its mouth in the Frisches Haff, 50 m. from Danzig. The industries include shipbuilding and the manufacture of motor cars, tobacco and other

goods. There is a good harbour. Elbing was founded in 1257 and was long a member of the Hanseatic League. Pop. 68,200.

Elbow In man, a joint. Joint formed by the articulation of the humerus of upper-arm bone with the radius and ulna, the outer and inner forearm bones. A prominence terminating the humerus fits into a cavity of the disk-shaped head of the radius, whose edge articulates with a deep S-shaped notch in the ulna; its gliding over the humerus rotates the forearm. A bony knob on the ulna, rising behind the humerus, prevents the joint from bending backwards. Fibrous sheaths, thickened into ligaments, help to hold the bones together, and are lined with a synovial membrane producing a lubricating fluid. The elbow may be dislocated forwards or backwards.

Elburz Mountain range of Persia. Its length is about 600 m.; breadth about 200. Mt. Demavend, a dormant volcano, is the highest peak (18,000 ft.).

Mount Elburz is the highest point in the Caucasus, the loftiest of its two peaks rising to 18,526 ft. It was first ascended in 1829. In the Republic of Georgia, Elburz is sometimes spelled Elbruz.

Elder Genus of deciduous shrubs and trees (*Sambucus*) allied to the guelder rose. They are native to all temperate regions except S. Africa. The common *S. nigra* is a rapidly growing tree, normally about 10 ft. high with cream-coloured flowers growing in flat clusters. The purplish-black berries are used for home-made wine, and elder flower water is used in confectionery. Dried elder pith balls serve for electrical experiments. The wood makes weavers' shuttles, skewers, and shoemakers' pegs. Several cultivated forms of elder occur in shrubberies, e.g., the golden, cut-leaved and scarlet-berried.

Elder Ruler or officer in some civil and ecclesiastical systems of government. It is analogous to the Roman senator and the English alderman. The term was used by the Jews and in the Old Testament there are frequent references to elders or leaders of the people. Hence it passed into the Christian Church where the early officials were called elders. In the Presbyterian churches elders elected by each church form the ruling body. Members of the Corporation of Trinity House are called **elder brethren**, and retired statesmen in Japan who are called on for advice in emergencies are known as **elder statesmen**.

Eldon Earl of. English title borne by the family of Scott since 1821. John Scott was born at Newcastle-on-Tyne, June 4, 1751, the son of a coal merchant. He was educated there and at Oxford, and in 1776 became a barrister. In 1782 he entered the House of Commons and in 1788 he was knighted and made Solicitor General. Five years later he became Attorney General, and in 1799 a judge and a peer as Baron Eldon. In 1821 he was made an earl. A strong Tory, Eldon is best known as Lord Chancellor, an office he filled 1801-06 and 1807-27. He died Jan 13, 1838. The earl's eldest son is called Viscount Encombe.

Scott's elder brother, William (1745-1836), also made a reputation as a lawyer. He was created Baron Stowell in 1821.

El Dorado Spanish phrase meaning "the gilded one." It was applied to a legendary potentate, city, and region reputed, by 16th-century explorers, to exist somewhere in northern S. America, and to abound in gold. It perhaps referred to a fabled

tribal chief who, smeared with balsam and covered with gold-dust, plunged into a sacred lake near Bogotá at a yearly festival. It developed into the story of a mythical city, Manoa or Omoa, the quest of many expeditions, including one by Raleigh which penetrated Guiana in 1595.

Eleanor Name of three English queens. One was the daughter of William, Duke of Aquitaine. In 1137 she married Louis VII. of France. The marriage being dissolved, she became the wife of Henry, later Henry II. of England. A great heiress, Henry secured with her lands in the S. of France. She was the mother of Richard I. and John, and died April 1, 1204.

Another **Eleanor** was the wife of Henry III. She was the daughter of the Count of Provence, and was married to Henry in 1236. Edward I. was her son. She died at Amesbury, Wills, June 25, 1291.

The third **Eleanor** was a daughter of Ferdinand III., King of Castile. In 1254 she married Edward, later Edward I., and with him went on crusade, whence her devotion to him has become a legend. She died at Harby, Nottinghamshire, Nov. 28, 1290, and the king erected a series of beautiful crosses at the places where her body rested on the way to Westminster Abbey. Of these crosses only those at Geddington, Northampton, and Waltham survive.

Eleatic School The philosophy which flourished at Elea, Lower Italy, from about 570-150 B.C. Its leading exponents were Xenophanes, Parmenides and Zeno, who taught the unity of all phenomena ("the All is one"), and attacked the current anthropomorphic mythology.

Election In politics, the act of choosing a representative. It is usually done by ballot, and in most elections a bare majority of the votes cast is sufficient to secure a return. Where, however, there are three or more candidates the votes given to the unsuccessful candidates are together often more numerous than those given to the successful one. To remedy this proportional representation (*q.v.*) other methods have been suggested.

Elections are of several kinds. In one the electors choose their representatives directly; in another they vote for persons who in turn choose the representatives. The President of the U.S. A. and the aldermen of English county and town councils are examples of indirect election. A general election is when all the representatives on a body are elected at once; a by-election is held to replace a representative who has resigned or died. In Fascist Italy the electors can only say yes or no to a list of names submitted to them by the authorities.

In company law, directors are elected by the shareholders, but such election is usually a mere form. Members are elected to clubs by the committee. Here a small minority can usually prevent a man from securing election. This is called black-balling. See VOTE.

Election Theological doctrine attributing to God the choice of particular persons to receive eternal life. It is a special adaptation of the process of redemption of the wider doctrine of predestination which claims to interpret the all-embracing design in the Divine will. John Calvin maintained the doctrine in an absolute and unconditional form.

Elector In general any one who is entitled to vote at an election.

In Great Britain and Northern Ireland there are about 29,000,000 electors, or practically all the adult population. In a special sense, the electors were the princes who chose the Holy Roman Emperor. They date from 911, but it was some time before they became a definite body. In the 13th century their number was fixed at seven and by the Golden Bull of 1356 this arrangement was confirmed. The seven were the Archbishops of Mainz, Cologne and Treves, the King of Bohemia, the Elector Palatine, the Duke of Saxony and the Margrave of Brandenburg. They formed the electoral college and each had a position in the emperor's household. The Archbishop of Mainz was president of the college. In 1618 the number of electors was raised to eight, and in 1708 to nine, the new electors being the Duke of Bavaria and the Ruler of Hanover, who later became King of Great Britain.

Electra In Greek legend, the daughter of Agamemnon and Clytemnestra, and the sister of Iphigenia and Orestes. After her father had been murdered by his wife, she assisted her brother in avenging his death. The three famous Greek tragedians, Aeschylus, Sophocles and Euripides, have written dramas dealing with the life story of Electra, the first of the three being called *Choephori* from the chorus of captive Trojan women offering libations at Agamemnon's tomb, and the other two *Electra*.

Electric Fish Genus of fish which possess the power of giving an electric shock. Three kinds of fish are known to have this power, the electric eel (*Gymnotus electricus*), a native of the rivers of Brazil and Guiana; the electric catfish (*Milapterurus electricus*), a native of the larger African rivers; and the torpedo, or electrical ray, found in warm seas all over the world. The fish use their power for defence and to stun their prey.

Electricity From early times certain phenomena related to frictional electricity have been noticed. Among the ancient Greeks, Thales recorded the attraction of light bodies by a piece of amber. In the 16th century Dr. Gilbert showed that other bodies also possessed this property, and to these he gave the name of electrics from the Greek *elektron*, or amber. From this time onward the experimental study of electricity grew, and the work of Newton and others resulted in the production of frictional machines giving a spark several inches in length.

With the Leyden jar, invented in 1745, came an understanding of the principles of induction, and seven years later, Franklin demonstrated the identity of lightning with the electric spark. In 1800 Volta discovered a new source of electricity in the contact of two dissimilar metal plates immersed in acidulated water, the prototype of the modern primary battery or cell.

The phenomena observed by this new discovery led to the foundation of electrochemistry. Davy, by his study of electrolysis, being able for the first time to decompose the alkalis and earths. The work of Faraday, Oersted and Ohm resulted in the enunciation of the laws governing electrolysis, the principles of electro-magnetism and the idea of electrical resistance.

In more recent times the researches of Hertz and many others have further increased our knowledge of the working of electrical forces, and the work of Johnstone Storey and Thomson

has culminated in the discovery of the atomic nature of electricity and the elaboration of the electron theory.

The uses which electricity has for man are many and varied. It is used as a source of power, as a source of light and heat, and is beneficial in the treatment of certain diseases.

Electricity is produced by water power on a large scale in Canada, the United States (where Niagara is utilised), Norway, Switzerland and other countries. In Great Britain, where water power is less abundant, coal is used, although some of the falls in Scotland are harnessed to the service.

In London and other cities great power stations have been erected for supplying electricity to railways, tramways, and industrial establishments, as well as to shops and private houses. These are controlled by private companies, with a certain amount of public control.

In 1926, to extend the use of electricity, a Central Electricity Board was established. The whole country has been divided into regions and for each a scheme to supply electricity on a large scale has been prepared. Work has begun on some of them; for instance a large power station for the midland area has been opened near Birmingham. Meanwhile the railway lines, especially in the London, Manchester and Liverpool areas, are being electrified and in 1931 a large scheme for electrifying the main lines was put forward.

Electricity is used to a certain extent on farms and there is an electricity department at the National Physical Laboratory.

Electric Shock *Treatment for.*—If the contact has not been broken, stand on some poor conductor (dry wood, cement) and handle the patient very carefully, if possible with rubber gloves, and in any case with some dry material between the hands and his skin. It may be necessary to knock away the wire with a dry stick after short-circuiting the current with a bar of metal dropped on the wire and with the other end on the ground. The patient has to be treated for burns and shock—the latter primarily (see SHOCK). In severe cases it may be necessary to use artificial respiration (see under DROWNING). If the patient is breathing keep him warm and quiet. Obtain medical aid as soon as possible.

Electro-Chemistry *Branch of science dealing with the relation between electricity and chemical action. Some chemical actions produce electricity while in certain cases the passage of an electric current results in chemical change (electrolysis). The action in an electric storage battery is electrolytic. Electro-chemistry has many modern industrial applications as in production of metals (aluminium, sodium, iron alloys, etc.), refining (gold, copper), electro-plating and the manufacture of nitrates and other synthetic fertilisers, calcium carbide, phosphorus, carborundum, etc.*

Electrocution *Method of inflicting the death penalty adopted in the United States. It consists of the passage of a current of electricity of very high voltage through the body of the criminal, who is seated in a specially constructed chair. It is claimed by those who advocate this form of execution that it is more nearly instantaneous and less revolting than other methods. It was adopted by the state of New York in 1888,*

the first execution taking place in 1890, and by Ohio in 1896.

Electrode *Term applied to the points of entry and exit of electric current (positive and negative poles) of a voltaic cell, electrolytic cell, high vacuum tube, etc. The positive electrode in a primary cell is termed the anode and is usually of zinc, whilst the negative electrode or cathode may be of copper, carbon or mercury. In a secondary or storage cell the electrodes are usually of lead.*

Electrokinetics *Branch of physical science dealing with electricity in a state of motion, or current electricity, in contradistinction to electrostatics, which treats of electricity in a state of equilibrium, or electric charges.*

Electrolysis *The process of chemical decomposition by means of an electric current. If a current be passed through a conducting liquid, or electrolyte, chemical change sets in and the products of decomposition appear at the electrodes. For example, if the electrolyte is an aqueous solution of copper sulphate, metallic copper is deposited on the cathode, or negative electrode, and sulphuric acid is liberated at the anode, or positive electrode. This process forms the basis of electro-plating (q.v.).*

Electro-Magnet *See MAGNET.*

Electrometer *Instrument for measuring electrical potential differences. The term is usually confined to instruments of high sensitivity used for measuring very small charges or changes of potential. Lord Kelvin in 1857 designed two forms which have persisted with minor improvements until the present day. This Quadrant Electrometer is based in principle upon the rotation of a light delicately suspended vane between the four separate quadrants of a circular metal box, opposite pairs of which are charged to the potential difference to be measured.*

Electron *Smallest known particle of matter, or atom of negative electricity. The term was first used by the physicist, Dr. Johnstone Stoney, the theory of electrons being substantiated later by Sir J. J. Thomson, who demonstrated the atomic nature of electricity. The weight and speeds of movement of electrons are known from experimental evidence, and the accumulated knowledge of these minute bodies has revolutionised physical science. The atom is now regarded as consisting of a group of electrons revolving round a central positively charged nucleus.*

Electro-Plating *Process by which a thin layer of one metal is deposited electrolytically upon another metallic surface. The metal to be deposited may be gold, silver, nickel, copper, etc., and is used in the form of an aqueous solution of a salt. The object to be plated is suspended in the liquid from the cathode, while a piece of the metal to be deposited is attached to the anode. Silver-plating is widely adopted for many articles of brass, copper and German silver. Nickel plating forms an efficient protective covering to many articles, while chromium is now extensively used. See ELECTROLYSIS.*

Electrostatics *Section of physical science dealing with electricity in a state of equilibrium, in contradistinction to electrokinetics which treats of*



STATELY SYMBOLS OF THE ELECTRICAL AGE.—Giant Pylons which carry the power lines of a section of the New Grid System 3060 feet across the Thames.

P

[Robinson

electricity in motion. It deals with the laws and problems relating to the forces of attraction and repulsion as seen in the phenomena of frictional electricity, also with the conditions of conductivity and non-conductivity and the laws governing these conditions. Electrostatics is concerned experimentally with various machines or devices designed to convert mechanical energy into electrical energy.

Electro-Therapy Medical term for electricity to treatment of disease. Direct and high frequency alternating current and static discharges of suitable strength are used. The results include benefit to the nervous system, the creation of heat at greater depths than can be reached by external application, and the destruction of certain growths.

Electrotyping Method of printing. A wax or other mould of the type to be reproduced is faced with graphite on which copper or other metal is deposited electrolytically and then strengthened by a backing of lead or similar metal. On removing the mould, the impression is used for printing copies of the original.

Electrum Term originally used by the ancients for amber. It was later applied to a natural alloy of gold and silver found in veins in Hungary and Transylvania; most of this alloy contains about 30 per cent. of silver. Electrum was also produced artificially in early times, for use in coinage and plate, and consisted of three or four parts of gold to one of silver. A modern alloy known as electrum contains nickel, copper and zinc.

Elegy Term denoting a poem of mourning. Strictly the true elegy was a lament in elegiac metre, each couplet consisting of a hexameter and a pentameter, the name referring to the form rather than the sentiment.

Famous English elegies are *Daphnia* by Spenser, *Lycidas* by Milton, *Adonais* by Shelley and *Thyrsis* by Matthew Arnold, all commemorating, under classical names, friends of the poets. Tennyson's *In Memoriam* is another elegy; other famous ones are the *Elegy written in a Country Churchyard* by Gray, and Swinburne's *Ave atque Vale* in memory of Baudelaire.

Element. According to the ancients, term applied to fire, air, earth and water, which were regarded as certain qualities determining the different forms of matter. In modern chemical terminology an element is a simple body which cannot be decomposed by any known means of chemical analysis. There are 90 elements at present known, some of these being very rare and their properties little understood. The study of radio-activity has shown that some of the elements, under certain conditions, may change one into another, as in the case of radium, uranium and lead, and recent experiments on the bombardment of elements with particles travelling at very high speeds have resulted in definite disintegration of one element into another.

Elephant (*Elephas*) Genus of mammals, comprising the largest existing quadruped. They are sometimes 8 to 11 ft. in height. The nose forms a flexible, double-barrelled proboscis or trunk, often 4-5 ft. in length, the sensitive finger-like tip of which can pick up small objects. The teeth include, in both sexes, upturned upper incisors or tusks,

the source of ivory. Large tusks may measure up to 9 ft. and weigh 90 or 100 lb.

The two living species of elephant are the Asiatic or Indian, with concave forehead and small ears, and the taller African species with convex forehead and large flapping ears. A dwarf race, standing 5 ft., occurs in French Congo. Tamed Asiatic elephants serve for ceremonial, timber and other transport; they rarely breed in captivity. The African elephant has as yet proved untamable. White elephants are albinos.

Elephantiasis Disease characterised by overgrowth of the skin and subjacent tissues. It is also called Barbadoes leg. It is caused through chronic obstruction of the lymphatic vessels. The skin becomes tense, hard and sometimes wart-like, the affected parts being permanently swollen, sometimes enormously. It may arise from several causes, but chiefly from a thread-like parasitic worm, filaria, introduced by mosquito agency. Frequent all over the tropics, it apparently originated in Asia in antiquity. It is distinct from leprosy, which is sometimes called *elephantiasis graecorum*.

Elephantine Island in the Nile, opposite Assuan, Upper Egypt. It contained the frontier station at the southern limit of the Old Kingdom Nile navigation, through which Sudan ivory passed into ancient Egypt. Its governor also regulated granite quarrying at Assuan. There is a nilometer of the Ptolemaic period on the island.

Eleusis In ancient geography, a city twelve miles from Athens, the seat of the worship of Demeter and of the Eleusinian mysteries. The events celebrated were the descent of Persephone into the underworld and her return to the light of day and her mother. There were two festivals, the greater and the less. They were intended to confirm, in the minds of the "initiated," the faith in life after death and a system of rewards and punishments. The city was destroyed by the Goths in 396. Excavations were begun in 1882, and the whole site is now exposed.

Elevator Appliance for raising a body or bodies to a higher level. The term is most frequently used for a lift for passengers. In mining, bucket chains, consisting of revolving chains with buckets attached, and hydraulic elevators are used. In America and other wheat growing countries, the term elevator is used for the great grain stores or silos, which are fitted with elevating, loading and distributing machinery.

Elgar Sir Edward. English composer. He was born June 2, 1857, at Broadheath, Worcestershire, and his youth was spent in a variety of choral and orchestral experiences. In 1890 his overture *Froissart* was played at the Worcester Festival and with *The Dream of Gerontius*, 1900, a violin concerto, 1910, symphonies, 1908 and 1911, and his cello concerto, he has earned a sure position as one of the great masters of music. Elgar was knighted in 1902 and received the Order of Merit in 1911; in 1924 he became Master of the King's Music. In 1930 he produced a new *Pomp and Circumstance* march and in 1931 a *Miniature (Nursery) Suite*, dedicated to the Princesses Elizabeth and Margaret Rose. In 1931 he was made a baronet.

Elgin Burgh, market and county town of Moray or Elginshire, Scotland. It

is 80 m. from Aberdeen and 180 m. from Edinburgh and is served by both the L.N.E. and L.M.S. Ryas. The chief object of interest is the ruined cathedral; there are also the remains of a castle and of monasteries. The Greyfriars chapel has been restored. The burgh has an agricultural trade. Pop. 7776.

Elgin Earl of. Scottish title borne by the family of Bruce since 1633. The first earl was Thomas Bruce, and his son, the second earl, was also Earl of Aylesbury. In 1746 the title passed to the Earl of Kincardine and since then the earls have held the double title. The family seat is Broomhall, Fifo, and the earl's eldest son is called Lord Bruce.

James Bruce, who became the 8th earl in 1841, was Governor-General of Canada, 1846-54, and from 1862-63 was Viceroy of India. In the meantime he represented his country in China. He died in India, Nov. 20, 1863. His son, **Victor Bruce**, the 9th earl, was First Commissioner of Works in 1886. From 1894-99 he was Viceroy of India and he presided over two important royal commissions. In 1905 he was made Colonial Secretary, an office he held for three years. He died Jan. 18, 1917.

The **Elgin Marbles** are works of art collected by Thomas Bruce, 7th earl of Elgin, when he was British ambassador in Constantinople. They include specimens of the work of Phedias and other great Greek artists. They were brought to London in 1806 and were bought in 1816 for the British Museum, where they still remain.

Elginshire County of Scotland, officially known as Moray (q.v.).

Eli High priest of Israel in the later period of the Judges (1 Sam. i-iv). He judged Israel for forty years, and the ark sanctuary at Shiloh was in his care. Samuel, the boy temple-attendant, prophesied God's anger at the wickedness of Eli's sons, Hophni and Phinehas. Hearing of their death when the Philistines captured the ark, he fell down and died.

Elia Pen name under which Charles Lamb (q.v.) contributed a series of essays to the *London Magazine*. The first essay, which appeared in 1820, describes the Old South Sea House, where he spent his first few months of business life 30 years before. Elia was the name of one of his fellow clerks there.

Elibank Village of Selkirkshire, Scotland. It gives the title of viscount to the family of Murray. In 1643 Patrick Murray was made a baron and this title passed to his descendants. In 1911 the 10th baron was made a viscount. His eldest son, Alexander Murray (1870-1920) was a Liberal politician. After serving as chief whip, he was made a peer in 1912 as Baron Murray of Elibank. He died before his father and the title passed in 1927 to Gideon Murray, as 2nd viscount.

Elie Burgh, seaport and watering place of Fifeshire, Scotland. It stands on the north side of the Firth of Forth, 10 m. from St. Andrews and 45 m. from Edinburgh. It includes Earlsferry. Pop. (1931) 1098.

Elijah Hebrew prophet (1 Kings xviii-xxi; 2 Kings i-iii). Of Gileadite origin, he led the life of a hermit, dramatically emerging to predict a drought, to summon Ahab and the priests of Baal to a contest with Jehovah on Mt. Carmel, or to warn Ahaziah. Finally he disappeared in a fiery chariot. Believing in his reappearance before the coming of the Messiah, Jews still set his chair ready at

the Passover meal. The New Testament, in describing the Transfiguration, calls him Elias. His day is July 20.

Eliot George. Pen-name of the English novelist, Marian or Mary Ann Evans. She was born at Arbury Farm, near Nuncaton, Nov. 22, 1819, her father, Robert Evans, being agent for a neighbouring landowner. Her early years were passed in the country, but in 1841 the family moved to Coventry. There she studied a good deal and was an accomplished scholar when, in 1849, she settled in London. She had abandoned the evangelical faith of her youth for agnosticism and her first literary work was a translation of Strauss's *Life of Jesus*. In 1851 she was made assistant editor of *The Westminster Review*, for which she wrote and through which she met George Henry Lewes, with whom she formed a union.

In 1858 Miss Evans published in *Blackwood's Magazine* her first stories, called *Scenes from Clerical Life*. Then followed three of her greatest works, *Adam Bede*, *The Mill on the Floss* and *Silas Marner*. In 1863 she published *Romola* and then came *Felix Holt, the Radical*; *Middlemarch* and *Daniel Deronda*. In verse she wrote *The Spanish Gypsy*. Lewes died in 1878 and in 1880 she married John W. Cross. She died Dec. 22, 1880.

One of the leading novelists of the 19th century, George Eliot is at her best in picturing, as she does with remarkable fidelity, the quiet country life of the midlands.

Eliot Sir John. English politician. Born at Port Eliot in 1592, of a wealthy Cornish family, he went to Exeter College, Oxford. In 1614 he entered the House of Commons and in 1618 was knighted. About the time when Charles I. ascended the throne he became an active critic of the policy of the king and the Duke of Buckingham, his former friend. He helped to draw up and pass the Petition of Right and in 1629, for protesting against illegal taxation, he was put in prison. He was still in the Tower of London when he died, Nov. 27, 1632. Eliot wrote *The Monarchy of Man* and other books.

Elisha Hebrew prophet, the disciple and successor of Elijah (2 Kings ii-viii, xlii). He exercised great influence on court and city life under the Israelite kings from Jehoram to Joash. His story abounds in miraculous incidents, mostly beneficent, as raising a widow's son and healing Naaman the leper. The orthodox calendar commemorates him on June 14.

Elixir Term used in pharmacy. An elixir is a preparation composed generally of weak syrup, flavouring agents, a fair proportion of alcohol and a medicinal ingredient. Examples are the elixirs of scuna, rhubarb, figs and cinchona. The alchemists applied the term to the philosopher's stone and to a substance (*elixir vitae*) supposed to prolong life indefinitely.

Elizabeth Hungarian saint. Daughter of King Andrew II., she was born in 1207 and in 1221 married Louis IV. of Thuringia. On his death in 1227 she left her three children and went into a monastery. Her later days were passed in penances and self-denial in a hut at Marburg, where she died, Nov. 19, 1231. She was canonised in 1235 and her story is the subject of Charles Kingsley's *The Saint's Tragedy*, 1848.

Elizabeth Name of two English Queens. One, born about 1437, was a member of the Woodville family. She was

the widow of Sir John Grey when she met and married Edward IV. Edward V. was her son. She died in 1492.

The other, born Feb. 11, 1465, was her daughter. She was probably concerned in the plot that culminated in the Battle of Bosworth and afterwards married the victorious Henry Tudor, later Henry VII. Henry VIII. was her son. She died Feb. 11, 1503.

Elizabeth Queen of England and Ireland. Born at Greenwich, Sept. 7, 1533, she was the daughter of Henry VIII. and Anne Boleyn. In 1536 her mother was executed and her father took little interest in his daughter, who passed her time mainly at Hatfield. Her education, however, was not neglected and she was placed in the succession to the throne after Edward and Mary.

In Nov. 1558 she became queen and her reign lasted for 45 years. Its glories are one of the main themes of English history, and the Elizabethan age is regarded as one of the greatest, perhaps the greatest, the country has ever known. Its literature alone would make it memorable, even unique, but there were also glories of other kinds won by the men of action who have given eternal fame to the word Elizabethan.

The first part of the reign was occupied with the establishment of the Church of England in the form which it retains to-day. Then came the increasing hostility between the English and the Spanish seamen and the plots formed to kill the queen and replace her by Mary, Queen of Scots, her prisoner for 19 years. Tortuous negotiations with France and spasmodic assistance to the Dutch Protestants were other occupations. The execution of Mary in 1587 ended one danger and the defeat of the Spanish Armada in the following year made England supreme on the seas. The last years of the reign were troubled by risings in Ireland and by the queen's reluctance to make any arrangements about a successor. She died at Richmond, March 24, 1603.

A clever, if unscrupulous woman, Elizabeth's personal part in the affairs of state was a considerable one. From some grave mistakes she was undoubtedly saved by the wisdom of her ministers, especially the great Lord Burghley, and by the gallantry of her warriors, but at other times her own strong common sense was of inestimable value. To the end Elizabeth remained unmarried, but the possibility of winning the hand of a powerful ruler was a factor of importance in European politics for many years. She refused Philip II. of Spain; she dallied with the idea of marrying Henry III. of France, or his brother, or Don John of Austria, but these were only moves in the political game. If she loved at all, it was one of her English favourites, either Leicester or the unfortunate Essex.

Many books have been written about Elizabeth. Two of the best are M. Creighton's *Queen Elizabeth* and *Elizabeth and Essex* by Lytton Strachey.

Elizabeth English princess. Born Dec. 1635, she was the second daughter of Charles I. After her father's execution in 1649, she was kept in Carisbrooke Castle, where she died, Sept. 8, 1650.

Elizabeth British princess. Born April 21, 1926, she was baptised as Elizabeth Alexandra Mary. The daughter of the Duke and Duchess of York, the princess is the third in succession to the throne.

Elizabeth Empress of Russia. A daughter of Peter the Great and Catherine, she was born Dec. 18, 1709. Having lived a retired life for some years, she appeared in 1741 at the head of the party that deposed the young Tsar, Ivan VI. She then became empress and ruled Russia until her death, Jan. 5, 1762. A good part of her reign was occupied in fighting against Frederick the Great. She founded the University of Moscow.

Elizabeth Queen of the Belgians. Born July 25, 1876, she was a daughter of Charles, Duke of Bavaria. In 1900 she was married to Albert, who in 1909 became King of the Belgians. Their family consists of two sons and a daughter.

Elizabeth Queen of Bohemia. Born at Falkland, Fifeshire, Aug. 19, 1596, she was the eldest daughter of James VI. of Scotland. In 1613 she married Frederick, the Elector Palatine, who, in 1619, was crowned King of Bohemia. She shared his troubled fortunes and with him became an exile in the Netherlands. After Frederick's death in 1632, Elizabeth remained there for some years in considerable distress, made worse after the death of her brother Charles I. At this time she met the Earl of Craven, who devoted his life to her. In 1661 she settled in London, where she died, Feb. 13, 1662. The queen's large family included Sophia, the mother of George I., and the soldier prince, Rupert.

Elizabeth Queen of Rumania. A daughter of the Prince of Wied, she was born Dec. 29, 1843, and in 1860 was married to Charles, or Carol, who became later prince and then King of Rumania. She was Queen Consort until her husband's death in Oct., 1914. Her own followed on March 2, 1916. The queen is best known as a writer of poems and stories under her pen-name of Carmen Sylva. Some of them have been translated into English.

Elizabeth Madame. Name given to the French princess, Elizabeth-Philippine Marie-Elisabeth. Born at Versailles, May 3, 1764, she was the granddaughter of Louis XV. and sister of Louis XVI. In 1792 she tried to escape with the king, but was caught at Varennes and imprisoned. On May 10, 1793, she was sent to the guillotine.

Elk Largest species of deer (*Alces machlis*). It is native to northern Europe, Siberia and America, where it is called the moose. Fossil remains occur in the Thames valley. The Alaskan elk is a gigantic animal, standing 8 ft. at the withers, with broad, palmate antlers weighing 50-60 lb. In Scandinavia the elk is hunted on snowshoes with trained dogs, and is rapidly diminishing in numbers. Americans transfer the name elk to the wapiti deer, *Cervus canadensis*. A gigantic elk, once inhabiting Ireland, is now extinct.

El Kantara Town of Egypt. It stands on the Suez Canal, about 20 m. from Port Said and has a station on the railway line to the coast. In Jan. and Feb., 1915, the Turks attacked British forces defending the canal here, but were beaten back.

Ell (Latin, *ulna*; A. S. *eln*). Old measure, used chiefly for cloth. It is of varying lengths in different countries; the English ell is 45 inches, the Scottish 37, the Flemish 27, and the Jersey 48 ins. In Holland the modern ell is the metre, 39.37 ins. Ell wand was the old name for a measuring rod and an ell in length.

Elland Town and urban district of Yorkshire (W.R.). It is situated on the River Calder, 3 m. from Halifax. There are textile works, flagstone quarries, tile making and fireclay works. Pop. (1931) 10,327.

Ellenborough English title borne by the family of Law. Edward Law, a Cumberland man, born Nov. 16, 1750, was made Lord Chief Justice and a baron in 1802. He resigned in 1818 and died in the same year. His son, Edward Law, born Sept. 8, 1790, then became the 2nd baron. He was Lord Privy Seal and President of the Board of Control in 1828. From 1841-44 he was Governor-General of India, being responsible for the annexation of Sind. In 1846 he was First Lord of the Admiralty and in 1858 was again President of the Board of Control. In 1844 he was made an earl, but this title became extinct on his death, Dec. 22, 1871. His barony, however, passed to a kinsman and is still in existence.

Ellenborough is a village in Cumberland, just outside Maryport.

Ellen's Isle Small island of Loch Katrine, Perthshire. It is associated with Scott's poem *The Lady of the Lake*.

Ellerman Sir John Reeves. English shipowner. Born May 15, 1862, he became a clerk in a shipping office. In 1902 he purchased part of the Leyland line of steamers and founded the Ellerman Line. Soon he controlled a large shipping fleet, including the Ellerman, Hall, City and Bucknall Lines. In 1905 he was made a baronet.

Ellesmere British island. Situated in the Arctic regions of North America, it is 40,000 sq. m. in area, but uninhabitable.

Ellesmere Market town and urban district of Shropshire. It is 11 m. from Whitechurch, on the G.W. Rly., and is also served by a canal. Near are several mires. Pop. (1931) 1872.

The title of **Earl of Ellesmere** has been held since 1846 by the family of Egerton. The first earl was Lord Francis Leveson-Gower, a younger son of the 1st Duke of Sutherland. On the death of the last Earl of Bridgewater in 1829, he inherited the estates of the Egertons and took that name. He was made an earl in 1846 and the present earl is his descendant. The earl's seat is Worsley Hall, Manchester, and his eldest son is called Viscount Brackley.

Ellesmere Port Town of Cheshire. It is 7 m. from Chester and stands on the Mersey at the junction of the Ellesmere and Manchester Ship Canals. There are large docks and the other industries are dyeing and the manufacture of chemicals. With Whitchy it forms an urban district. Pop. (1931) 18,898.

Ellice Islands Islands of the Pacific Ocean. The group of nine islands forms part of the Gilbert and Ellice Islands colony, which became a British Protectorate in 1892 and was formally added to the Empire in 1915. Area, 14 sq. m. Pop. 3741. See GILBERT ISLANDS.

Elliot Walter Elliot. British politician. Educated at Glasgow Academy and at the university there, he became a doctor. In 1914-18 he served with the R.A.M.C. in France. In 1918 he was elected Conservative M.P. for Lanark; in 1923 he lost his seat, but in 1924, 1929 and 1931 was elected for

Kelvingrove. In 1923-24, and again in 1924-26, Major Elliot was Under-Secretary for Health for Scotland; in 1926-29 he was Under-Secretary for Scotland, and in 1931 Financial Secretary to the Treasury, proving himself one of the ablest debaters and administrators among the younger Unionists.

Ellipsis Figure of speech in which a word or words are omitted, although their meaning is implied. The nominative is often omitted as in the sentences, "Who steals my purse steals trash," and "Would he were here," or the antecedent is omitted before the relative pronoun as in "Whom the gods love die young."

Ellis Henry Havelock. British psychologist. Born at Croydon, Feb. 2, 1859, after teaching for four years in New South Wales, he took his medical degree in London. He soon afterwards abandoned his practice for literary and scientific work. He writes on scientific subjects in a clear literary style, and has written amongst other books: *Man and Woman* (1894-1904), *The Soul of Spain* (1908), *The Task of Social Hygiene* (1912), *Essays in Wartime* (1916), *Kangaroo Creek* (1922), *The Dance of Life* (1923), *Essays of Love and Virtue* (1931). His greatest work is to be found in his *Studies in the Psychology of Sex*, in seven volumes published over a number of years.

Ellora Ruined city of Hyderabad, India. It is 13 m. from Aurangabad and is noted for its temple and caves, which are among the wonders of India. Extending along the front of a hill for over a mile, these caves were cut in the rocks and the rock temples include Buddhist, Brahmin and Jain examples and date from the 5th, 9th and 10th centuries. The Kallas temple, a famous ruin, is here also.

Ellwood Thomas. English writer. Born in 1639 at Crowell in Oxfordshire, he was converted to Quakerism about 1659. He is chiefly known as the friend and assistant of Milton, whom, from 1662, he served by reading to him. He suggested the idea of *Paradise Regained*. Ellwood wrote a good deal in defence of the Quaker faith and also an *Autobiography* which is full of interest. He died March 1, 1714.

Elm Genus of trees and shrubs (*Ulmus*), native to N. temperate regions. The common *U. campestris*, a tree growing up to 130 ft., rarely perfects its winged, one-seeded fruits in Britain, where it is usually propagated by layering or suckering. The hard, tough close-grained timber serves for keels, tackle-blocks, coffins, wheel-naves and common turnery. The indigenous Scotch or wych elm, *U. montana*, which is almost as tall, yields timber much employed for boat and coach building, because it is flexible when steamed.

Elms are subject to a disease which causes the tree to die back. This became serious in France and Belgium after the Great War and in 1927 appeared in England.

Elman Mischa. Russian violinist. Born Jan. 20, 1891, son of a Jewish schoolmaster, he made his first appearance in public in St. Petersburg in 1901. In 1905 he played in London and was soon recognised as one of the world's masters. In 1920 he was naturalised as an American and made his home in New York.

Elmham Name of several English villages. The largest, North Elmham is on the Wensum, 5 m. from East Dereham and 127 m. from London, on the

L.N.E. Rly. Pop. 900. **South Elmham** is about 5 m. from Bungay.

Elocution Art of speaking effectively in public. A course in elocution is part of the training of an actor. It is also studied by preachers and those who wish to become public speakers. Much depends upon the natural qualities of the voice, but, however good these are, they can be improved by some knowledge of correct pronunciation, the control of the breath, the right use of expression and gesture and other such matters.

El Paso City, river port and watering place of Texas, U.S.A. It stands on the Rio Grande river, on the Mexican border, and is served by Mexican as well as American railway lines. There is a trade in the minerals lead, copper and silver, mined in the neighbourhood, and the industries include large smelting works for lead and copper. There is a trade along the river and the city has some manufacturing industries. It is the centre of the Rio Grande reclamation project, and the large quantities of cotton grown on the reclaimed land have brought fresh industries to the city. Pop. 113,500.

Elsinore Seaport of Denmark. It stands on the Island of Zealand and on The Sound, and is connected by railway with Copenhagen. The place has a shipping trade and some manufactures and from here a ferry goes to Helsingborg in Sweden. It is the reputed scene of Shakespeare's *Hamlet*. Pop. 13,800.

Elstow Village of Bedfordshire. It is just outside Bedford. In 1628 John Bunyan was born near the village, in which he lived after his marriage. Pop. 500.

Elstree Town of Hertfordshire. It is 7 m. from St. Albans, on the L.M.S. Rly. and is also reached by the Metropolitan Rly. The place has become a centre of the film industry and here and at Boreham Wood are large studios. Pop. 2,300.

Elswick District of Newcastle-on-Tyne, on the Tyne within the city boundaries. Here are the extensive works founded by Sir William Armstrong, which now belong to Vickers, Armstrong, Ltd.

Eltham District of London. In the Borough of Woolwich, it is 7 m. from London Bridge, on the S. Rly. It is also served by tramways and motor omnibuses. The open spaces include Eltham Common, Avery Hill and Eltham Park. Old Eltham contains some interesting old houses. Nearer Woolwich is New Eltham. The early kings had a palace here. Most of it has disappeared, but the hall remains. Eltham has associations with Sir Thomas More, whose house still stands.

A township of North Island, New Zealand, is called **Eltham**. It is on the railway from Wellington and is the centre of a dairy farming district.

Earl of Eltham is the title borne by the eldest son of the Marquess of Cambridge.

Ely City, market town and urban district of Cambridgeshire. It is on the Ouse, 16 m. from Cambridge and is served by the L.N.E. Rly. It is the chief town of the Isle of Ely and has an agricultural trade. Ely is famed for its cathedral, one of the finest and largest in England. The tower, 170 ft. high, is of rare beauty. Pop. (1931) 8,382.

The Irish title of **Marquess of Ely**, taken from a village in Fermanagh, Ireland, has been held

since 1800 by the family of Loftus. The eldest son of the marquess is called Viscount Loftus.

Ely Isle of. District of England. It is part of the county of Cambridge for some purposes, but has its own county council which meets at March. The district, in the north of the county, stretches from Ely to Wisbech and is famous for its market gardens. Pop. (1931) 77,705.

Elysium In classical mythology, the fair land, also called the Elysian Fields, where the souls of the good dwell after death. Homer depicts it as being on the western margin of the earth, by other writers it is called the Isles of the Blessed, or Fortunate Islands, and in a later age it is described as being in the nether world. A land of flowers, sunshine and happiness, great heroes were supposed to pass there without death.

Elzevir Name of a Dutch family famous as printers. In 1583 Louis Elzevir began business as a printer at Leiden and the business was continued by his descendants, first there and later at Amsterdam, until 1712. The Elzevirs won a great reputation by the excellence of their printing.

Embalming Method of preserving a dead body. It was practised among the ancient Egyptians, Peruvians and many other races, and has been revived to some extent in modern times in Europe and America. In Egypt the body was embalmed by several methods described by Herodotus and Diodorus, the internal organs being removed and preserved in special jars. Various aromatic resins and astringents, natron and bitumen, were used according to a definite ritual. Not only human bodies but cats, crocodiles and sacred birds were embalmed.

Embankment Originally a bank or mound made to keep water from flowing over the land. Now it is usually confined to such works along river banks, encroachments of the sea being dealt with by piers or breakwaters. Embankments usually include a roadway, the best known example being the Embankments along the Thames in London. Another kind of embankment is the earthwork made along the sides of a railway line when it passes through a cutting or depression.

Embargo Primarily a temporary order to prevent the arrival or departure of a ship. It was usually enforced on enemy vessels on the outbreak of war. The term is now used for the temporary stoppage of a particular trade. For instance there may be an embargo on the export of arms or on the import of drugs.

Embassy Building where an ambassador lives. The word is also used to designate the ambassador and his staff collectively. As a building the embassy is regarded as being on the land of the country that owns it. By a similar convention, an embassy is freed from rates and taxes.

Ember Days Four seasons for prayer and fasting observed in the liturgical churches of W. Christendom. They comprise the Wednesday, Friday and Saturday of the weeks, called Ember Weeks, which begin with the 1st Sunday in Lent, Whitsunday, Holy Cross day (Sept. 14) and St. Lucy's day (Dec. 13). The Anglican communion appropriates the Sundays following them for ordinations, the Roman Catholic church the Saturdays of the Ember Weeks.

Embezzlement In English law the offence of appropriating money by a servant or agent, as when an agent or collector keeps for himself money paid to him on account of his employer, or where a shop assistant puts in his pocket money paid to him for goods sold.

Emblem Device or picture made to embody a spiritual idea or to symbolise a quality. In art, emblems have been attached to most of the saints, and even to Jesus Christ. Instances are the lily of the Virgin, the keys of St. Peter and the lamb of St. John the Baptist, and there are thousands of others. Printers call the marks they use on their works emblems. The modern substitute of the emblem is the badge.

Embolism Medical term for the condensation of obstruction in the arteries or capillaries due to some substance carried in the blood. Usually this condition is caused by masses of fibrin detached from a blood clot formed in a vein on the heart, but it is sometimes caused by foreign bodies which have entered the blood stream. An embolism occurring on the brain may cause paralysis, and when formed in a limb may be followed by gangrene.

Embroidery Method of decorating materials by means of needle and thread. Beautifully embroidered work was made in Babylon and Greece and the Christian church has always made much use of embroidery to adorn vestments and hangings. Wonderful patterns were worked with remarkable skill and patience and sometimes, as in the Bayeux Tapestry, historical scenes were depicted.

To-day, the more elaborate forms of embroidery are rarely practised except by professional workers for churches and so on. Women's garments are sometimes adorned with embroidery, but much of this is machine made.

Embryology Section of biology dealing with the developmental stages of an animal or plant from the egg to the mature organism. This science has become of great importance, as it is only by the study of the early stages that the true relationships of many organisms can be ascertained, as in the case of the barnacles whose embryology shows that they belong to the Crustacea, although, from anatomical observations they were classed by the older naturalists as mollusca.

The individual plant or animal usually starts its life cycle in the union of two germ cells or gametes, one the sperm cell or spermatozoon, the other the ovum or egg cell. The ovum, after fertilization, undergoes cell division resulting in the formation of tissues and organs, the details of these early stages varying greatly in different types. Further, the evolutionary history of the race is in some way stamped upon the germ cells with the result that the individual recapitulates more or less the stages through which it has evolved.

Emden Seaport of Prussia, Germany. It stands on the estuary of the Ems, on the borders of the Netherlands, 50 m. from Oldenburg. A short ship canal links the harbour with the River Ems, and Emden is also the terminus of the important canal to Dortmund. The town has a considerable trade for which there are extensive harbours and it is a fishing centre. Another industry is shipbuilding. Pop. 27,800.

The Emden was the name of a German light cruiser. She displaced 3,600 tons and early in the Great War did a good deal of damage to British shipping in the Pacific and Indian Oceans. On Nov. 9, 1911, she was caught and destroyed by the Australian cruiser, *Sydney*, at North Keeling Island. A later light cruiser of this name, launched in 1915, was surrendered by Germany at the armistice.

Emerald Precious stone, the green variety of the beryl. It is a silicate of beryllium and aluminium, the colour being due to a minute proportion of chromium compounds and varying from a grass-green with a yellowish tinge to a deep emerald green. The lustre of the emerald is vitreous with a velvety effect in the finest gem stones; few specimens are flawless or have uniform colouring. The finest stones are found at Muzo in Colombia.

Emerson Ralph Waldo. American author. Born in Boston, May 25, 1803, he was the son of a Unitarian minister. He was educated in his native town and at Harvard, and became a teacher. In 1829 he was selected as minister of a Unitarian church in Boston, but three years later he resigned because his views were unacceptable to his congregation. He then visited England where he began his lifelong friendship with Carlyle, and met Coleridge and Wordsworth. Soon after his return, he settled at Concord and earned a living by preaching and lecturing, but his reputation was really made by his writings, especially his essays and poems. He kept up a close connection with his English friends and lectured in England in 1847. He died at Concord, April 27, 1882, and was buried in Sleepy Hollow cemetery.

Emerson's first book was called *Nature*, 1836, and in it and his successor, *The American Scholar*, he outlined the principles of his philosophy, called transcendentalism. The organ of this movement was *The Dial*, which he edited for two years. In 1841 he published his first volume of essays and in 1847 his first volume of poems. *Representative Men* are lectures delivered in England, his visit to which country inspired *English Traits*. His later volumes include *The Conduct of Life*, 1860; *Society and Solitude*, 1870; and *Letters and Social Aims*, 1876.

Emery Dark brown or greyish-black variety of corundum. It is composed of alumina mixed with the iron oxides, magnetite and haematite, and is used as an abrasive on account of its extreme hardness. It is found in bands or irregular granular masses in crystalline limestones associated with metamorphic rocks in Naxos in the Aegean Sea, but its chief commercial sources are Ontario, New York State and the Transvaal. The rock is reduced to various grades of powder, which is used for grinding, cutting and polishing metals, etc.

Emetic Substance which, when taken into the stomach or injected subcutaneously, induces vomiting. It is used in cases of whooping cough and bronchitis to remove accumulations of mucus, in some forms of dyspepsia where evacuation of the stomach is necessary, and in many cases of poisoning. Emetics in general use are mustard or salt in warm water, sal volatile, ipecacuanha wine and sulphate of zinc, while apomorphine is injected beneath the skin as a powerful but non-irritant emetic.

Emigration Act of leaving one's native country in order to settle

in another. From the earliest times there have been emigrations of people from one land to another, but emigration in the modern sense only began in the 17th century when Europeans crossed the Atlantic to settle in America. There were also emigrations within Europe such as those of the Huguenots after the revocation of the edict of Nantes. In the 19th century emigration to North America reached enormous proportions, Ireland and Scotland being two of the countries that contributed greatly to it. Australia and parts of South Africa were also peopled by European emigrants.

After a time, as the new countries filled up, they began to place restrictions on immigrants. This took the form of requiring them to possess a certain capital, or a certain standard of education, or freedom from disease. Still more drastic measures were taken in the United States, Australia, Canada and elsewhere to keep out coloured immigrants, on the ground that their lower standard of living was a menace to the white man.

After the Great War, for these reasons and also for others, e.g., pensions, insurance and other benefits which made people more reluctant to leave the homeland, there was a great decline in emigration. For instance in 1913, 196,278 emigrants left the United States for Canada, 77,934 for Australia and 77,014 for the United States. In 1928 the corresponding figures were 95,307, 43,851 and 56,508.

The United States adopted a policy of only allowing a limited number of immigrants from each nation. For each a quota, based on the number of each nationality already in the country, was fixed, and only this number was admitted each year. In 1929 the number allowed was 153,741 divided as follows:

British ..	65,721	Irish ..	17,353
German ..	25,637	Other Nations ..	44,510

In order to encourage emigration, the British Government has an Oversea Settlement Department at Caxton House, Westminster, S.W.1. Suitable emigrants can be helped, and under the Empire Settlement Act of 1922 over 50,000 were assisted to emigrate in 1927.

Emir Arabic word for a ruler or commander. Other forms of it are ameer and amir. The form emir is only used in Africa, where it refers to an independent chieftain.

Emmaus In Biblical geography, a village in Palestine. Its exact position is unknown, but it was not far from Jerusalem. It was for a long time identified with the Emmaus, rebuilt by Vespasian under the name of Nicopolis, now known as Amwas. Others identify it with Koloniyeh and El Kubebe, both about ten miles from Jerusalem.

Emmet Robert. Irish politician. He was born in Dublin, the son of a doctor, in 1778, and went to Trinity College there. Influenced by a stay in France, he decided to make an attempt at securing independence for Ireland. He planned a rising in Dublin, but this was made known to the authorities and Emmet, having fled to Wicklow, was caught. Found guilty of treason he was hanged, Sept. 20, 1803.

Empedocles Greek philosopher and poet. He was born at Agrigento in Sicily. He set up a democracy there, but later left Sicily and settled in Peloponnusus. His works, all in verse, include a poem on medicine, on purification and on natural science. He held there were four

unchangeable elements, fire, air, earth and water, and two opposing forces, love and hate, which bind or separate.

Emperor Word taken from the Latin *imperare*, to rule, and used for a ruler more powerful than a king. Julius Caesar called himself *imperator* and his nephew, Augustus, was the first of the Roman emperors. The title was used by those who claimed to be the successors of the Roman emperors. See EMPIRE.

A large butterfly found in the south of England is called the **emperor**, or **purple emperor**, on account of the purple lustre on the male. There is also an emperor moth which is found in Great Britain.

Empire Term used loosely for a state of the most powerful kind which is ruled by an emperor or empress. It comes from the Latin word *imperium*. The German word for it is *Reich*. The first empire was the Roman. Later the word was used for the great states that existed before Rome, and men speak of the Assyrian, Persian, Babylonian and other empires.

The Roman Empire was continued by the Byzantine and the mediæval empires and on the ruins of the latter arose the Austrian Empire in 1804 and the German Empire in 1871. Both these disappeared in 1918, while the Russian Empire, which also claimed succession from Rome through Byzantium, was destroyed a year earlier. The title of Emperor of the French was taken by Napoleon in 1804 and France was an empire for 10 years. This was the first French Empire. The second lasted from 1852 to 1871 and its ruler was his nephew, Louis Napoleon known as the Emperor Napoleon III.

In the 19th century, too, the term empire began to be used for the lands under the King of Great Britain and Ireland. India was made an empire when the title of empress was given to Queen Victoria in 1878. In America two empires, Brazil and Mexico, arose, but each had only a short life. The only empires in the world since 1918 are the British and the Indian, one within the other, and the Japanese, but neither of these has any resemblance to the earlier empires.

THE HOLY ROMAN EMPIRE. The Empire, in full the Holy Roman Empire, known also as the Mediæval Empire, lasted from 800 to 1806. It was created by Charlemagne, who was crowned emperor in Rome by the Pope and believed himself to be the successor of Augustus Cæsar. It consisted of the lands under his rule, which included the countries now known as France, Germany, part of Italy and other European lands. This empire was divided after his death and in the 9th and 10th centuries it fell to pieces.

The Empire was revived in 962 by Otto the Great, Duke of Saxony, who was crowned, like Charlemagne, in Rome by the Pope. His empire, however, did not include France, but consisted chiefly of Germany and Italy. Otto's son and other descendants succeeded him, but the idea grew up that each must be elected and be crowned by the Pope. The Electors at first were all the princes of Germany, but gradually they were narrowed down to seven, the Archbishops of Mainz, Treves and Cologne, the King of Bohemia, the Count Palatine of the Rhine, the Margrave of Brandenburg and the Duke of Saxony.

The Saxons, descendants of Otto the Great, were emperors until 1002. Then came the Franconian or Salian, emperors who ruled

until 1124. During this time there took place the tremendous struggle for supremacy between the Papacy, under Pope Gregory VII., (Hildebrand) and the emperors. The Franconian emperors were succeeded by the Swabian house of Hohenstaufen and during their reigns the fight was renewed. On the whole the popes had much the better of it and when Frederick II. died in 1250 the Empire was in a state of chaos.

After a period without a ruler, Rudolph of Hapsburg was elected German king in 1273, but he was not crowned at Rome and so is not reckoned as an emperor. For the next 50 years or so there was continual fighting for the imperial crown and, although various princes were crowned emperors, no one had any real authority. In 1316 Charles, King of Bohemia, became ruler of Germany and later was crowned emperor. By this time Italy had been lost and the Empire consisted of little more than Germany, although the titular connection with Rome was maintained.

Charles was followed by his two sons, Wenceslaus and Sigismund, and on the death of the latter Albert of Hapsburg secured the Empire. From then until 1806 the Empire was in practice, though not in theory, the possession of that great family. One after the other its members were elected and took the imperial title, but, especially after 1618, the Empire was but a loose collection of rival states over which the emperor had little authority. The greatest Hapsburg emperor was Charles V.; the last was Francis, who resigned an empty dignity in 1806. He belonged to the family of Hapsburg-Lorraine, for he was descended from the marriage of Maria Theresa, the heiress of Charles VI., and Francis, Grand Duke of Lorraine.

Empire Day In Great Britain an annual celebration. It takes place on May 21, the birthday of Queen Victoria, and dates from 1904. The idea is due to the 12th Earl of Meath. Empire Day is not a bank holiday.

Empire Free Trade See IMPERIAL PREFERENCE.

Empire Marketing Board British Government organisation. Founded in 1926, it advises the government on matters connected with marketing Empire produce. Publicity is an important activity, while by grants to suitable institutions at home and in the colonies it encourages research in connection with Empire agricultural products suitable for the home market.

Empire Style Neo-classical style of French decoration, in vogue during Napoleon's consulate and empire. Following the Directoire style, it derived its impulse from Napoleon's campaigns in Egypt, which popularised the sphinx, and from the discoveries then recently made at Pompeii and Herculaneum. Architecture simulated Roman grandeur; furniture displayed rectangular forms, sometimes with swelling curves, as in sofas, and curvilinear motives, such as wreaths and bows; textiles bore the bee, eagle and Napoleonic N. Its influence lasted until 1840.

Empiricism Knowledge which rests solely on experience and induction, not on the study of laws and general principles. It is used for a school of philosophy in which these are the essential ideas. The philosophers who have taught empiricism

include Hobbes, John Locke and John Stuart Mill.

Employer One who engages another to work for him or her at a wage or salary, either temporarily or permanently. An employer must, in his dealings with his employees, observe the laws concerning the relations between master and servant; such laws include the length of notice necessary to terminate an engagement, etc. Between the employer and employed there is a contract.

At common law an employer is liable to pay damages to a servant who is injured in the course of his employment. This was dealt with in detail in the **Employers' Liability Act** of 1880. The matter is also dealt with in the various **Workmen's Compensation Acts**, and a person who is injured may decide under which he shall take action. To-day the majority of cases are dealt with under the **Workmen's Compensation Acts**. Employers usually insure themselves against the risk of injuries to their employees.

Employment Exchange

In 1905 local authorities in Great Britain were empowered to open labour exchanges as they were called, and in 1910 a national system was established. Buildings for the purpose were erected or bought all over the country. In 1916 the name was changed to employment exchanges. They were at first controlled by the Board of Trade, but later passed under the Ministry of Labour. These exchanges are responsible for paying out benefits to those insured against unemployment (*q.v.*).

Empress Female ruler, or the wife of an emperor. It comes from the Latin *imperator* and was used for the female rulers at Byzantium. Several rulers of Russia were empresses, as were the wives of the French, German and Austrian emperors; but the last-named were not sovereigns. See EMPEROR.

Some of the boats of the Canadian Pacific Line are named empress, *e.g.*, *Empress of Scotland*.

Ems River of Germany. Rising in Thuringia it flows for 210 m. through Westphalia and Hanover to the North Sea. Emden stands near its mouth and it is connected with Dortmund and other places by the Dortmund-Ems canal.

Emsworth Seaport of Hampshire. At the mouth of the little River Ems, it is 76 m. from London and 9 from Portsmouth, on the S. Ry. There is a small harbour. Pop. 2200.

Emu Large bird found only in Australia and the adjacent islands. Though smaller, it resembles the ostrich, having only rudimentary wings. It can run very fast and swim well. Emus live in flocks in uninhabited parts and feed chiefly on fruit. They are hunted with dogs and will breed freely in captivity. The male is smaller than the female and incubates the eggs, which are green.

Enamel Term applied to either a hard, smooth, resistant coating on metal, pottery, etc., or to a varnish paint or lacquer on wood, metal and leather. The first kind consists of a glossy material applied in paste form to an article which is afterwards heated in a furnace. Its application, in coloured designs was brought to a fine art by Egyptian, Greek, Roman, Byzantine and mediæval craftsmen.

The second kind consists of a pigment added either to a linseed oil varnish containing kauri gum or other resins, or to a resin dissolved in pyroxilin or cellulose nitrate.

Encaenia Annual festivals in memory of the dedication of particular churches. An instance is that commemorating the Temple at Jerusalem. The annual commemoration of the founders and benefactors of Oxford University in June is called the Encaenia.

Encaustic Method of painting by means of pigments with melted wax as a medium. It was used by the Greeks and Egyptians of the Græco-Roman period. In one process the pigments were mixed with white wax and moulded into sticks or cakes and the tints were blended with a heated metal tool, the rhabdion; in another method the brush was used for laying on the colours, the whole picture being then heated.

Encke Johann Franz, German astronomer. He was born at Hamburg, Sept. 23, 1791, and after service in the army, became director of an observatory near Götting in 1817. Director of the observatory at Berlin from 1825-69, he died at Spandau, Aug. 26, 1865. Encke gave his name to a comet. This was discovered by a French astronomer in 1818, but Encke did valuable work in calculating its movements; he also made observations on the transits of Venus.

Enclosure Common land converted to the use of a private individual. In England, in the Middle Ages, there was an enormous amount of common land, but gradually much of it was enclosed by the lords of the manor. By law they could do this, provided they left enough unenclosed for the use of the tenants. In the 18th century by special Acts of Parliament dividing the land between the lord of the manor and the tenants, about 5,000,000 acres were enclosed, and the practice continued until 1815, when commissioners were appointed and further enclosures were few and small.

Encyclical Circular letter addressed by an ecclesiastical authority to its members. In the Anglican communion the word nowadays denotes letters summarising the episcopal conclusions formed at the periodical Lambeth conferences. In the Roman Catholic communion it is reserved for letters addressed by the pope to all bishops on topics interesting the church at large.

Encyclopaedia Word of Greek origin meaning the whole circle of knowledge. It is used for books that give, in alphabetical order, information on all subjects of human interest and sometimes for works not arranged on the alphabetical plan. Books dealing in similar fashion with one branch of knowledge, e.g., education or chemistry, are sometimes called encyclopaedias.

Encyclopaedias go back to the time of the Greeks. The first English example appeared in 1701, and in 1728 Ephraim Chambers published one. The *Encyclopaedia Britannica* first appeared in 1771 and until it passed under American control was the leading British example. The most famous of all was the *Encyclopédie* edited by Diderot and D'Alembert. The group of brilliant men who wrote for it were called the Encyclopédistes and included Voltaire and Rousseau. In recent years the tendency has been to make encyclo-

paedias shorter and handier, and the present work is written with this end in view.

Enderby Land District in Antarctica. Situated in about 50° E. long., due S. of Madagascar, and within the Antarctic Circle, it was named by John Biscoe, who discovered it in 1831, when sailing in the London whaling brig *Tula* belonging to Enderby Brothers. The Enderby quadrant designates one of the four map-sectors constituting the south polar region.

Endocrinology Study of the endocrine (internal secreting) glands and their secretions (hormones). These glands include the thyroid, thymus, supra-renal, pituitary, pineal body, carotid and coerebral glands, which yield up their secretion to the blood stream without the intermediary of a duct; and others (pancreas, ovary, testes) which though provided with ducts for certain secretions, manufacture also others (endocrines) which reach the blood directly. Thus the term "ductless glands" is not synonymous with endocrine glands.

The internal secretions govern nutrition, growth, metabolism; deficiency in some may produce abnormalities such as cretinism or dwarfism; excess may cause gigantism, and in the case of the thyroid, exophthalmic goitre. Both physical conformation and mental make-up are affected by their functioning. Defects may be remedied by the administration of glandular preparations or by surgical removal of portions of the glands. See GLAND.

Endogamy See EXOGAMY.

Endorsement Writing on the back of a document constituting a sanction. Cheques, bills of exchange and other documents must be endorsed before they can be paid into a bank. The endorsement usually takes the form of the signature of the person to whom the document is made out.

Endowment Money settled on an institution or society. The term is generally used for money given or bequeathed to a religious, educational or philanthropic institution which, being corporations, can hold land or other property in perpetuity. In Great Britain a vast sum of money is held as endowments, some of it being controlled by the Charity Commission.

Endowment policies, as they are called, are issued by insurance companies to provide money for educating a son or daughter, or starting them in life, or for some other purpose.

Endymion In Greek legend, a youth of remarkable beauty, variously described as a king, shepherd or hunter. He was kissed by Selene (the moon) when asleep in a cave on Mount Latmus in Caria. Selene caused him to sleep for ever that she might be able to kiss him without his knowledge. Keats called his most considerable poem *Endymion*.

Enema Fluid injection into the bowel. Enemata may be cleansing, comprising water with or without soap and purgatives; nutrient, when stomach derangement prevents digestion; sedative, for painful bowel irritation; destructive, for threadworms; and healing, as for intestinal ulcers. A rubber ball syringe or a funnelled tube passes the fluid through a round-ended nozzle into the rectum.

Energy Term used in physics for the power of doing work. This power is not necessarily active; it may be stored up in a body, as in the case of a coiled spring, which possesses potential or static energy. Work implies the action of force and motion, and when the spring is released these factors become active in the performance of work.

In **static energy** there must be that which will cause the continuance of the force in spite of motion as in the elasticity of the spring. In **kinetic energy**, the energy of motion, there is inertia or momentum to ensure the continuance of the motion against resistance. A leaden weight moving rapidly will produce a greater effect than a ball of wool moving at a high speed. Energy is measured in units of work or foot-pounds, one foot-pound being the amount of work required to raise one pound vertically one foot.

Enfield Market town and urban district of Middlesex. It is 10½ m. from London on the L.N.E. Rly. The New River passes through the town. Enfield Lock, where is the Royal smallarms factory, is a district near.

Enfield Chase, fragments of which survive in Hadley Wood and elsewhere, was at one time a noted hunting ground and a palace was built here. The greater part of the palace was demolished in the 18th century. What remained has been used as a school and then as a club. A section of a cedar brought from the W. Indies about 1780 and believed to have been the first cedar to be planted in England, is preserved in Enfield library. Pop. (1931) 67,869.

Enfranchisement Liberation the admission to political privileges. Persons are enfranchised by being given the right to vote, as was done in 1918 and 1928 in Great Britain when women were made voters. Another kind of enfranchisement is turning a leasehold tenure into a freehold one.

Engadine Valley of Switzerland. The upper part of the valley of the River Inn, it is on the borders of the Tirol. About 60 m. long it is famed for its beauty and climate. It is divided into two parts, upper and lower, and in it are several places visited for health and pleasure, such as St. Moritz and Pontresina.

Engelberg Pleasure resort of Switzerland. It stands at the base of the Titlis Alps, 14 m. from Lucerne. The chief building is a Benedictine abbey with a fine and valuable library and an old church. The place is noted for its cheese. Pop. 2500.

Enghien French prince, the last of the Condé family. Louis Antoine Henri de Bourbon Condé was born Aug. 2, 1772. He commanded a royalist army against the republicans before 1801, when he settled in Baden, but three years later, falsely accused of conspiracy, he was arrested by Napoleon's orders, tried by a mock court-martial and shot, March 21, 1801.

Engine Mechanical appliance used for converting one form of energy into another. The conversion of heat into mechanical energy is seen in the steam engine and in gas, oil and internal combustion engines. Formerly the term was applied to any complex machine, such as a beer engine or water engine, and in a military sense to any

appliance used in war. Of modern types of engines the internal combustion engine and the Diesel oil engine are noteworthy.

Engineer One engaged in any engineering work. There are engineer officers in the navy. These pass through courses at Keyham and Greenwich and then enter the navy, where they rank engineer lieutenant, engineer commander and so on up to engineer vice-admiral. Owing to the increase in the power of warships, this branch of the service is of much greater importance than formerly. In the army engineers belong to the corps of royal engineers; engineers are also employed in the air force.

In civil life engineers are employed on a great variety of work and are classed accordingly. They are trained in colleges and at the universities, most of which give degrees in engineering. Engineers are employed by the Board of Trade, the Post Office and other Government departments, but more find work with railway companies, shipbuilders and contractors, whilst there are many openings with local authorities and companies that possess electric light, gas and water plants. Every large city or town has a city or borough engineer with a staff.

Skilled artisans engaged in making engines, boilers and the like are called engineers. These form a powerful trade union, the Amalgamated Society of Engineers. The word was first used in England in the 13th century as a military term.

Engineering Civil engineering is design and construction of bridges, roads and docks and with irrigation and its associated mechanical devices. Mechanical engineering deals with the machinery for generating motive power and with mechanical appliances for trades and manufacturing processes. Electrical engineering is concerned with all forms of electrical machinery for generating power and the methods of electric lighting and heating. Further specialisation has resulted in the important branches of mining, metallurgical, agricultural, chemical and wireless engineering.

The principles of engineering science and their practical application in many directions appear to have been known in very ancient times as is demonstrated in the remains of constructional work in Egypt, Crete and elsewhere. The remains of double-cylinder force pumps used by the Romans show a high state of development of mechanical knowledge.

Civil engineering as a definite branch began in the 17th century, and the discovery of the steam engine and the progress of scientific knowledge brought about the specialisation of other sections.

The interests of the science are fostered by the Society of Engineers in London and by the Institutions of Civil, Mechanical and Electrical Engineers, whose headquarters are also in London. The British Engineering Standards Association exists to assist the profession. At the National Physical Laboratory there is a research department for engineering, and at South Kensington there is an engineering museum.

ENGINEERING AS A CAREER.—It is said, and with some truth, that engineers, like poets, are born, not made. At all events "feeling" for machinery is necessary to the would-be engineer if he is to find success and happiness in his craft.

To become a skilled artisan it is necessary to enter a workshop at the age of 15 or 16, and to serve an apprenticeship of four or five years at a nominal wage. The artisan's pay is not high—usually somewhere in the region of £3 10s. to £5 per week.

Technical apprentices are those who propose to take up engineering work of a higher grade, and are usually boys of 16 to 18 years, and of good education. Their apprenticeship period is three or four years.

It is also generally possible, and a great advantage, to take a degree in engineering at a university or a diploma at a technical college, either before, or concurrently with, experience in or on works—but it should be remembered that the latter is essential.

Training will vary according to the particular branch of engineering it is intended to enter, and it is advisable to decide this at the outset. Full information of training, qualifications necessary and examinations which may be taken, is obtainable from the secretaries of the various technical institutions representing the particular branches of engineering. See also CIVIL ENGINEERING.

AUTOMOBILE ENGINEERING.—No new industry has made such progress of recent years as that of the manufacture of motor cars. The possibilities for an automobile engineer are undoubtedly good for the able, trained and enterprising man, but like most other departments of engineering, it is at present somewhat overcrowded. The wage rate varies widely, but there are real opportunities for ultimate advancement for qualified men in the private car and commercial vehicle factories, the passenger carrying concerns and maintenance.

Those contemplating training for this branch of engineering should consult the Institution of Automobile Engineers (Watgate House, York Buildings, Adelphi, London, W.C. 2), the council of which has given considerable thought to the correct procedure for the trainee and is therefore in a position to advise, through its secretary, on such questions, as suitable works apprenticeship, Technical Evening and Part-time Day Classes, Full-time University Courses, and Full-time Courses at certain specialised colleges.

CIVIL ENGINEERING.—Under the term "Civil Engineering," as it is popularly understood, may be grouped work on railways, canals, harbours, docks, etc., structural steelwork and municipal engineering (waterworks, sewage, etc.).

As with the other branches of engineering, practical experience and scientific knowledge are the essentials, the latter being obtainable in a variety of ways. Advice on the possible avenues of training and the qualifications necessary should be sought at an early date from the Institution of Civil Engineers, Great George Street, Westminster, London, S.W. 1. (It should be noted that the conditions of admission to this Institution are such as to be capable of fulfilment by one who has been trained in any branch of engineering.)

There is a field for Civil Engineers both at home and abroad. Pay usually commences at about £250 and may rise to £1000 or more, with suitable adjustments to conditions of living abroad.

ELECTRICAL AND WIRELESS ENGINEERING.—Electrical Engineering is divided into two classes, manufacturing and operating. It is advisable to take a thorough course in the theoretical side, and the usual apprentice-

ship is necessary. The student should qualify for membership of the Institution of Electrical Engineers (Savoy Place, Victoria Embankment, London, W.C. 2).

The possibilities of advancement for the electrical engineer are perhaps more promising than in any other department of engineering. The field of manufacture offers the widest scope for advancement and remuneration, but the development of Wireless Telegraphy and Broadcasting has introduced extensive possibilities in technical and administrative positions.

The more responsible posts carry salaries from £200 upwards, sometimes rising to £1000 a year or more. Abroad, in the Dominions and Colonies, salaries usually commence at £100 to £500 a year.

MINING ENGINEERING.—There is scope for the Mining Engineer, both at home and abroad, in commercial firms (which in the British Isles implies chiefly coal, with some iron ore, lead and tin), as mine inspectors and surveyors under the Mines Department and occasionally for Government posts in the Colonies.

Practical experience is essential, while the scientifically trained man (preferably a University Graduate) is more and more in demand for coal mining, metalliferous mining or oil-field development. Depending on the branch or branches of mining engineering adopted, the student should qualify for membership of one or more of the recognised technical Institutions, viz.: The Institution of Mining Engineers; The Institution of Mining and Metallurgy, both of 225 City Road, London, E.C. 1, and the Institution of Petroleum Technologists, Aldine House, Bedford Street, London, W.C. 2.

Salaries for trained engineers range from £250 upwards per annum; mine managers earn £500 and upwards, while abroad the rates may be considerably higher. British qualifications are accepted in all parts of the world.

Engineers Royal Corps of the British Army. It is organised into electric, field, fortress, postal, printing, railway and surveying companies, as well as a bridging, towing and a searchlight battalion. In time of war they take the field in companies attached to various divisions or brigades. The corps may be said to date from 1772. Its strength in peace time is about 20,000 officers and men; but in 1918 it had risen to 340,000. The engineers are commonly called the sappers. Entrance to the corps is by competitive examination, after which the successful candidates pass through a course at Woolwich.

England Chief part of the island of Great Britain. Once a separate kingdom, it has become the nucleus of the United Kingdom and of the British Empire. Its king has become the ruler of vast areas including India, and its Government has, with modifications, been extended over large parts of the globe. Its area is 50,871 sq. m. Its population at the census of 1931 was 37,351,917, of whom 17,814,709 were males and 19,510,208 were females. London is the capital.

PHYSICAL FEATURES.—The country, including Wales for this purpose, is almost an island, its only land boundary being where it touches Scotland. Its extreme lengths are 430 m. and 370 m., and it has a coastline of about 1800 m. Most of the country is fairly

level throughout any ground over 1000 ft. high. In the N.W., however, are mountainous areas. The country is well watered. The chief rivers are the Thames, Severn (partly in Wales), Trent, Tyne, Tees, Great Ouse, Yorkshire Ouse, etc. Round the coast are many excellent harbours and river mouths on which are great ports such as London, Liverpool, Hull, Bristol, Southampton and Plymouth. A network of railways covers the land, but canals are less general. Off the coast are a number of islands, the largest being the Isle of Wight.

DISTRIBUTION OF POPULATION.—England is divided into 40 counties, which vary much in size and population, the largest being Yorkshire and the smallest Rutland. The population is very unevenly distributed, as for nearly 200 years the land has become more industrial and less agricultural. It tends to gather in great industrial areas. More than half the population live within an easy radius (say 25 m.) of London and Manchester. In the 20th century there has been a tendency for industry to congregate in the south, a reversal of the process of the 18th and early 19th centuries when it congregated in the north. In the agricultural counties, Lincolnshire, Norfolk, Wiltshire and Somerset, for example, the tendency is for the population to decline; if it does not do so it is because of its proximity to an industrial area. The largest cities after London are Birmingham, Liverpool, Manchester and Sheffield, all with over 500,000 inhabitants. Leeds, Bristol, Hull, Bradford, Newcastle, Stoke, West Ham and Nottingham have each over 250,000, whilst Portsmouth, Leicester, Salford and Croydon are very near that figure.

England Church of. National Church of England and the recognised parent of the Anglican Church throughout the world. It dates from the 6th century, when St. Augustine settled at Canterbury and began to preach Christianity in the country. It was soon organised into dioceses under bishops, and this organisation has continued. The main influences came from Rome, but Celtic influences were mingled with these.

Under Henry VIII. the Church of England broke away from Rome. Its doctrines were reformed under Edward VI., and since the time of Elizabeth there has been no fundamental change. Its doctrines are in the 39 articles, and its services are contained in the Book of Common Prayer, both legalised in that reign.

After the Great War the Church in Wales, hitherto an integral part of the Church of England, was disestablished, and now forms an independent branch of the Anglican Church under its own archbishop. The Church of England is organised in two provinces, Canterbury and York, each under an archbishop, and in 43 dioceses. The two archbishops and 22 bishops sit in the House of Lords.

The Church of England is controlled by the state, and no alterations can be made in its doctrines, or its form of worship, without the sanction of Parliament. In 1927 and 1928 attempts to revise the prayer book were rejected by the House of Commons. Under Parliament, it is governed by a national assembly, a body set up in 1920 and consisting of three houses, bishops, clergy and laity. There is also an older body called Convocation (q.v.). In addition there is an annual church congress, and periodically a conference of all Anglican bishops meets at Lambeth.

In 1929 the clergy in the Church of England numbered 12,864. There were during the year 200,000 confirmations and nearly 450,000 baptisms. There were 2,476,000 communicants at Easter.

Englefield Green Village of Surrey. It is 11 m. from Egham and near Windsor Park. The village is the scene of Mrs. Oliphant's *Neighbours on the Green*. Another Englefield is a village in Berkshire, about 6 m. from Reading.

English Channel Arm of the sea, between England and France. On the west it connects with the Atlantic Ocean and on the east with the North Sea. It is narrowest between Dover and Calais (21 m.), and widest between Lyme Regis and St. Malo (145 m.). Its length is 280 m. The English coastline is 400 m., and the French nearly 600. The French call it La Manche, the sleeve. See DOVER.

Engraving Art of cutting a design upon wood, metal or stone to obtain an impression of the drawing in ink upon paper. The woodcut was the earliest form of engraving and was at its height in the 15th century; in this process the parts to appear white on the print were cut away on the wood block leaving the black parts in relief. In engraving on copper and later on steel-coated copper, popular in the 19th century, but now largely superseded by photographic and lithographic processes, the drawing is incised by means of a steel graver or burin. Engraving on stone is known as lithography. There is a fine collection of engravings in the British Museum.

Engrossing Form of writing in a fair, round, legible hand which is used for copying or writing legal documents. Formerly the engrossing of documents was done in a peculiar script modified from the ancient court hand and often far from legible.

Engrossing is also applied in a legal sense to the wholesale purchase of goods to create a monopoly for the purpose of raising prices. At one time it was an offence against the law.

Enham Village of Hampshire. It is 2 m. from Andover. After the Great War it became a centre for the treatment and training of disabled soldiers. The full name is Knight's Enham.

Enlistment Act of enlisting or enrolling oneself in the ranks of the army or air force. A recruit enlists on certain conditions of pay, etc., and for a certain period. If accepted as fit he signs an attestation paper, takes the oath of allegiance and becomes subject to military law.

Ennerdale Lake of Cumberland. About 3 m. long and 1 m. broad, it provides Whitehaven with a water supply.

Ennis Urban district and county town of Co. Clare, Irish Free State. It stands on the River Fergus 25 m. from Limerick and is served by the G.S. Rlys. Its port is Clare Castle. The trade is agricultural and there are some industries. Pop. 5500.

Enniscorthy Urban district and market town of Wexford, Irish Free State. It stands on the River Slaney, 77 m. from Dublin, on the G.S. Rlys. The chief object of interest is the castle, now a

private residence, and near the town is Vinegar Hill, the site of a rebel camp in 1798. The town has brewing and distilling industries. Pop. 5500.

Enniskillen Market and county town of Fermanagh, N. Ireland. It is 116 m. from Dublin and 88 m. from Belfast on the G.N. (Ireland) Rly. and stands on an island in the River Erne, with suburbs on both sides. There is an agricultural trade, also some river traffic. Pop. 4850.

Enniskillen or Inniskilling, a great Protestant centre in the time of William III., gives its name to two regiments of the British Army. These are the 28th Foot, known as the Royal Inniskilling Fusiliers and the Royal Inniskilling Dragoons. In 1921 the latter regiment was disbanded and its name transferred to the 5th Dragoon Guards.

The title of **Earl of Enniskillen** has been borne since 1789 by the family of Cole. The earl's eldest son is called Viscount Cole, and his seat is Florence Court, Enniskillen.

Ennius Quintus. Roman poet. One of the founders of Latin literature, he was born at Rudiae in Calabria about 210 B.C., and died in Rome about 170 B.C. He served with the Roman army in Sardinia and was taken by Cato to Rome, where he taught Greek. His great work was the *Annales*, a chronological account, written in hexameters, of Roman history, of which only fragments survive.

Enoch Name of four Old Testament patriarchs. One, the seventh in descent from Adam, the son of Jared and father of Methuselah, "walked with God" and, after living 365 years, "was not, for God took him" (Gen. v., Heb. xl.).

The apocryphal **Book of Enoch**, comprising primitive literary fragments compiled after 200 B.C. and completed under Herod the Great, is quoted in Jude 14. The other Enochs were a son of Cain, a grandson of Abraham and Keturah, and a son of Reuben.

Ensign Flag carried by a ship to show her nationality. Each nation has its own ensign, usually one for the navy and one for the mercantile marine. Great Britain has three ensigns. The white is for the royal navy, the blue for the royal naval reserve and the red for the mercantile marine. Ships of the Royal Yacht Squadron have the privilege of flying the white ensign. Each ensign has the St. George's cross in one corner. The design flying upside down is a sign of distress. In 1931 an ensign for aircraft was authorised. It is of light blue with a dark blue cross, edged with white, and has the Union Jack in the first quarter.

Ensign Former rank in the British Army. It was the equivalent of the second lieutenant of to-day. The duty of the ensign was to carry the regimental colours. The rank was abolished in 1871.

Ensilage Method of preserving green fodder or other crops. The material (silage) is stored in pits, stacks or towers (silos) so as to retain its succulency. It is necessary to exclude the air after fermentation is complete, otherwise over-heating of the silage takes place and the presence of organic acids gives rise to souring. Modern silos are built of wood, iron or concrete; the stack form is useful for saving hay crops in wet seasons.

Entablature In classical architecture the horizontal super-

structure surmounting the columns and resting upon the capitals. It usually comprised three members, the architrave, carried from column to column, pier or wall; the frieze, if present; and the projecting, protective cornice. All these members, originally of timber, preserved when translated into stone, some reminiscent features, e.g., triglyphs represented beam ends. The frieze was utilised for decorative sculpture and painting, but sometimes tended in late classical times to become overloaded and incongruous.

Entail Legal term for the rule by which real property is settled on a succession of heirs. In England a great deal of land was once settled in this way, but the amount gradually grew less since an entail could be broken with the consent of the heir. The system was finally ended by the Law of Property Acts of 1925. Real property can only be dealt with now by an ordinary settlement, although such is sometimes called an entail.

Entebbe Town of Uganda. It stands on a northern opening of Lake Victoria, and is the administrative capital of the British protectorate. Steamers go from here to other places on the lake, and there are also a mail and telephone service and an aeroplane landing ground.

Entente Cordiale Term for the friendship between Great Britain and France that began early in the 20th century and resulted in the alliance that carried on the Great War.

Enteric Fever Dysentery more properly termed typhoid fever (q.v.).

Enteritis Inflammation of the mucous membrane of the intestine, popularly called inflammation of the bowels. It receives specific names according to its locality, e.g., appendicitis. Its most marked symptom is diarrhoea. It may be due to eating unripe fruit; may accompany certain infective diseases caused by micro-organisms, such as cholera and typhoid fever, which is often called enteric fever; or may be a chronic sequel to dysentery. Epidemic enteritis in young children is termed summer diarrhoea. See COLITIS.

Entertainment Amusement or diversion, such as a cinema or theatrical performance, sporting event, etc. In Great Britain there is a tax on entertainments. It was introduced in 1916 and is in a scale which varies according to the price charged for admission.

Entertainments in schools and educational institutions are exempt from the tax, which in 1931 produced just over £6,952,000.

Entomology Branch of zoology concerned with insects. Most jointed invertebrates, including spiders, mites and centipedes, were formerly included, but the word is now restricted to the true or six-legged insects. Economic entomology considers insects in relation to mankind's interests. The **Entomological Society of London**, 41 Queen's Gate, S.W. 7, founded in 1834, and various foreign societies, specialise in this study. There is an **Imperial Institute of Entomology** with headquarters at the Natural History Museum, London, S.W. 7.

Entrepôt Term used for a store or bonded warehouse. It is also used for a seaport through which goods

pass. London is an entrepôt of the world's commerce.

Enver Pasha Turkish leader. Born in Constantinople in 1881, he became a leader of the Young Turk Party, and was active in the deposition of Abdul Hamid II. in 1909. He fought against the Italians in Tripoli and was Minister of War during the second Balkan War, in which also he led an army in the field. During the Great War, Enver, who had been an attaché in Berlin strongly favoured the German side. When peace was made in 1918 he escaped to the Caucasus and did all he could to upset the peace treaties. On Aug. 4, 1922, he was killed at Bokhara.

Environment Conditions that influence growth or development. It plays a prominent part in theories of evolution. Living beings must have a certain power of adapting themselves to their environment or else they die, but the extent of this power cannot be precisely ascertained.

Envoy Person sent on an errand, especially on a diplomatic one. It is used for one who is sent on a temporary mission, for instance to a coronation, in contradistinction to an ambassador whose mission is more permanent. An ambassador, however, is also called an envoy extraordinary.

Enzyme Active principle of a ferment. Enzymes belong to the class of catalysts, or substances whose mere presence induces chemical change in other molecules, but an enzyme will usually act on one or a few closely related chemical compounds only, and will refuse to touch any molecule coming outside its own limited range of specificity.

The amount of an enzyme present in any biological material is almost vanishingly small, but methods of extraction from such material in a state approaching purity have been worked out. Enzymes are now considered to be definite chemical compounds, anchored to "carriers" of much larger molecular size.

Eoanthropos Oldest known European race of man. It is one of a number of words, the first part of which is *eo* (a form of the Greek *eos*, dawn) used chiefly in palaeontology, in the sense of first beginnings.

Eocene Oldest division of the Tertiary system of geological deposits. It represents the period of the dawn of animal life and followed the Cretaceous period. Eocene strata usually rest upon the denuded surface of the underlying beds of white chalk and often form basin-like areas showing, by their character and fossil contents, their origin in estuaries and shallow seas. The beds consist of sands, clays, marls and, in S. Europe, N. Africa and Asia, a great development of limestone.

Eolith Name given to certain very early flint implements. They have been found near Ighiteam in Kent and elsewhere in S. England. Eoliths are generally flat on one surface, rounded with an ochreous patina on the other, and chipped to form a scraping edge or notches.

Eos Greek goddess of the dawn, regarded as identical with the Roman Aurora (q.v.).

Epact Term denoting the moon's age at the beginning of the year or the excess of the solar month or year over the corresponding lunar period. It is expressed

in the number of days, and is given in almanacs for each year. The epact is used in calculating movable ecclesiastical feasts.

Epaminondas Theban general and statesman. He was born about 418 B.C., and in 371 was one of the generals at the Battle of Leuctra; in 370 he invaded Peloponnesus, where he founded Messene and Megalopolis. In 362 he invaded it for the fourth time, and while he gained a brilliant victory over the Lacedaemonians at Mantinea, he was himself slain. Thebes for a short time held the supremacy of Greece, but lost her position almost immediately after his death.

Epéhy Town of France. It is 13 m. from Cambrai and came into prominence during the Great War. In April 1917, it was taken by the British from the Germans, who had held it since the invasion of France in 1914. The Germans regained it in March, 1918, and kept it until the following September. Between Sept. 12 and 25, 1918, the British, assisted by some French divisions, attacked strong German positions and gained considerable ground. These successes made possible the attacks on the Hindenburg line. Nearly 12,000 prisoners and 100 guns were taken.

Épernay Town of France. It is about 19 m. from Châlons, in the department of the Marne. The town is a great centre of the champagne industry, and there are large rock cellars in which the wine is stored, and works for making casks, corks, etc. In July, 1918, there was some fierce fighting around the town, but it was held by the French, aided by a British contingent. Pop. 21,800.

Ephah Hebrew measure of capacity. It contained 10 omers and was used for dry goods such as flour and barley. It is said to have had the same capacity as the bath, which was a liquid measure, and to have contained from 4 to 9 gallons. The word is apparently of Egyptian origin.

Ephemera Family of insects popularly called may-flies. They have a long, jointed abdomen, with three bristle-like tails. The aquatic larvae, living in ponds and sluggish streams, pass into a chrysalid stage which, in *E. vulgata* and *E. dancya*, two of the commonest of Britain's 50 species, furnish the bait that anglers call green drake and grey drake respectively. The perfect insects, which can be seen in May fluttering their lace-like wings in dense clouds, do not eat, and exist only for a day or two, or sometimes for a few hours only.

Ephesians Epistle to the Tenth book of the New Testament. Written during S. Paul's first imprisonment in Rome, about A.D. 62, it was apparently a circular letter addressed to the churches of Asia Minor which Tychicus carried simultaneously with that addressed to the Colossians.

Ephesus In ancient geography, the chief of the twelve Ionian cities on the coast of Asia Minor. It was a great commercial centre. There are numerous interesting ruins, a great theatre (Acts, xix.), an odeum, or building for musical purposes, a stadium and the famous temple of Diana or Artemis, built in the 6th century B.C., and rebuilt in the 4th. This was regarded as one of the wonders of the world. Six important

councils of the Christian Church were held there between the 2nd and 5th centuries.

Ephod Surplice worn by Jewish priests when officiating at the altar. The high priest's ephod was of linen, fastened by a girdle and supported by two shoulder straps. On each strap was an onyx stone on which were engraved the names of the twelve tribes of Israel. There are several biblical references to it, notably in Exodus, xxviii., xxix., xxxix.

Ephraim Younger son of the patriarch Joseph. He was exalted over his elder brother Manasseh in the paternal blessing. His descendants formed two of the tribes of Israel established in N. Palestine. Ephraim led the tribal opposition against the kingdom of Judah which resulted in the formation of the separate kingdom of Israel.

Epic Poem which deals with a great event in a lofty and dignified manner. The *Iliad* and the *Odyssey* are perhaps the world's greatest epic poems; another is *Paradise Lost*.

Epictetus Greek stoic philosopher. He was born at Hierapolis in Phrygia, and died at Nicopolis in Epirus. His dates are not known, but he died after A.D. 118. He lived in Rome as a slave in the house of Epaphroditus, a favourite of Nero, who emancipated him. When Domitian expelled the philosophers from Rome, he withdrew to Nicopolis. His great rule of life was "endure and abstain" which teaches men to judge what they can and ought to control, and what they ought to bear as being beyond their control.

Epicureanism Greek school of philosophy. It was founded by Epicurus who was born in Samos, 341 B.C., and came to Athens, where he taught and died, 270 B.C. According to him happiness consists in pleasure or rather in the absence of pain. But man needs a correct idea of the nature of pleasure; it is not individual pleasure, but complete mental tranquillity (*ataraxia*), for which virtue is indispensable. The mere sensual enjoyment of the later Epicureans was rejected by Epicurus.

Epidemic Term applied to a disease prevailing among a number of people at the same time. It is spread by infection, usually by the agency of micro-organisms. Among such epidemic diseases are influenza, measles, scarlet fever, whooping cough, etc. The term epidemic is used when the disease is local in character and pandemic when affecting very large areas. Epidemics are less frequent than in former times, owing to various preventive methods and the greater attention paid to sanitation.

Epidemiology is the branch of medical science devoted to the study of epidemic disease.

Epidermis Outer layer of the skin in animals, and the superficial cell layer in the higher plants. The animal epidermis, also called the cuticle, may be one or many layered, and in the higher animals, may be covered by a superficial horny layer.

Epiglottis In man a thin flap-like structure containing elastic cartilage. It is situated in front of the glottis or entrance to the larynx and behind the root of the tongue. In its ordinary position it is directed forward and in some types may extend over the edge of the soft palate. It prevents food passing into the air passage to the lungs.

Epigram Concise, pointed saying, often in verse. The earliest epigrams were written by the Greeks as inscriptions on tombs and memorials, one of the most famous being that written by Simonides on the heroes who fell at Thermopylae. The Romans, too, were very good at making epigrams, and Martial ranks as one of the world's great epigram makers.

After the revival of learning the epigram became a short poem on a single subject, ending with a witty or sarcastic remark. Of modern nations the French are perhaps the best at epigrams, Voltaire being outstanding in this respect. There are many excellent epigrams in English, those of Pope being notable. As an example, Coleridge's epigrammatical definition of an epigram may be given:

What is an Epigram? A dwarfish whole,
Its body brevity, and wit its soul

Epigraphy Study of inscriptions. It is usually concerned with those occurring on rigid materials, as stone, metal, bone, shell and wood, or materials capable of becoming rigid as clay. It includes incidental scratchings, as graffiti, but leaves to palaeography, or ancient writing, inscriptions on such flexible materials as papyrus, parchment and paper.

Epilepsy Nervous disorder, manifested by attacks of sudden insensibility. It is also known as falling sickness. When accompanied by convulsions it is major epilepsy or *grand mal*; when convulsions are absent it is minor or *petit mal*. In Jacksonian epilepsy the convulsive movements concern single groups of muscles, consciousness being retained; this is often remediable by surgical operation upon the brain lesion, usually caused by external pressure. Epileptic fits are often preceded by warning sensations, and sometimes masked by outbreaks of epileptic fury.

Epilogue Conclusion of a literary work or peroration of a speech. Specifically it was an independent commentary in verse after a drama, sometimes by another pen, appealing to the hearer's or reader's indulgence or deprecating criticism; it especially characterised 17th-18th century English drama.

Epinal Town of France. The capital of the dept. of Vosges, it stands on the Moselle, 46 m. from Nancy. It has many industries, one being the production of cheap images and pictures for children. The fortress, built after 1870, is one of the most important defence works of France. Pop. 30,000.

Epiphany Christian festival. It is celebrated on Jan. 6, the twelfth day after Christmas. Originally part of the 12 day commemoration which included Christ's nativity and baptism, the adoration of the magi or three kings, and the Cana miracles, the nativity feast was transferred to Dec. 25, Twelfth Day being appropriated in the East for baptisms, in the West for commemorating the three kings. Symbolic offerings of gold, frankincense and myrrh are made in the king's name at the Chapel Royal, London, on Epiphany Day.

Epirus In ancient geography, a country in the N.W. of Greece. It flourished under Pyrrhus (295-272), and formed part of the Roman Empire from 146 B.C. to A.D. 1204. The modern Epirus, which includes

part of N. Greece and S. Albania, was conquered by the Turks in the 15th century, and now forms part of Greece.

Episcopacy Form of church government of which bishops are the head. It grew up in the 2nd century and has since been the rule in the Roman Catholic Church, which claims for its bishops an unbroken descent from those times. The Anglican and Greek Churches are both episcopal and both regard the "historic episcopate" as essential to their life and work. Bishops can only be ordained by other bishops and in this way the apostolic succession, as it is called, is maintained. Episcopacy also prevails in the Lutheran, Moravian and Methodist Episcopal churches. See BISHOP.

Epistle Writing or letter. It is applied especially to the letters included in the New Testament, sent by S. Paul, S. Peter and other apostles to churches and individuals. Such are the epistles to the Corinthians and to Timothy. Other epistles were those written by Horace and later poets, a fashion copied by English writers in the 18th century.

Epitaph Inscription on a monument or tomb. Epitaphs have been found on Egyptian, Hebrew and other early tombs. The Greeks used them freely and the Romans were skilled in the art of stating the facts of a man's career in a few pregnant words. From Rome the custom spread all over the civilised world, and for many years Latin was much used for epitaphs, as it is to some extent to-day. In the 18th century humorous epitaphs were very popular on tombstones. Collections of them have been made. Notable epitaphs are the one on Sir C. Wren in S. Paul's Cathedral, London, *Si monumentum requiris circumspecte* (If you wish for his memorial look around), and "O rare Ben Jonson" in Westminster Abbey. A curious epitaph in a Lancashire churchyard is as follows:-

John Nuttall lies here & that's enough,
The candle's out & so's the snuff,
His soul's with God, you need not fear,
And what remains lies buried here.

Epithalamium Marriage song invoking blessings. In ancient Greece the epithalamium was sung by boys and girls before the bridal chamber on the marriage night and on the following morning; the Romans modified it to a song by girls only on the departure of the wedding guests. Pindar and Anacreon among the Greeks, Catullus of the Romans, Ronsard, Scarron and Malherbe among the French; and Spenser, Ben Jonson, Donne and Tennyson among English poets have written epithalamia.

Epithelium Animal tissue formed of epithelial cells. It forms the epidermis (q.v.), lines the alimentary tract (mouth to anus), and the windpipe, and occurs in glands. Its functions are protective, secretory or sensory, and it varies in form from the layer of ciliated cells in the windpipe to the stratified multilayered epithelium of the epidermis. See SKIN.

Epoch In astronomy a date fixed for reckoning the place of a star or planet. It has therefore come to be used for a period marked by important events, as the Napoleonic epoch.

Eponym Person after whom anything is named. In Greece it was the unofficial title of magistrates after whom

the year was named and of the heroes who gave their names to a tribe or people. Thus, Pelops was the eponym of the Peloponnese.

Epping Urban district and market town of Essex. It is 17 m. from London, on the outskirts of Epping Forest, on the L.N.E. Rly. The town is a busy agricultural centre. Pop. (1931) 4956.

Epping Forest District of Essex. It occupies about 6000 acres between the Rivers Lea and Roding, with Leytonstone, Epping, Chingford, Woodford and Loughton on its borders. Acquired by the corporation of the city of London and opened in 1882 it is a popular pleasure resort. It is wooded and contains two ancient camps, Ambresbury and Loughton. In 1928 Knighton Wood, 37 acres, was added.

Epsom Urban district and market town of Surrey. It is 14 m. from London, on the S. Rly. On the downs nearby the Derby, Oaks and other races are run. Epsom College is a public school associated with the medical profession. Woodcote Park is the country home of the Royal Automobile Club, and The Dirdans was the residence of Lord Rosebery. Pop. (1931) 27,089. See DERBY, THE.

Epsom Salts Magnesium sulphate in the form of small white crystals. Dissolved in water, it is used medicinally as a purgative. The name is derived from a mineral spring at Epsom from which it was at one time obtained.

Epstein Jacob. British sculptor. Of Russo-Polish parentage, he was born in New York, Nov. 10, 1880, and studied art in New York and Paris, where he came under the influence of Rodin. In 1908 he executed a series of figures on the facade of the British Medical Association building in the Strand, London, a work assailed at the time by much criticism. His figures of Venus, his Rama and Genesis, and the groups entitled Day and Night on the Underground building in Westminster have also provoked lively criticism. His portrait busts are by many considered his best work.

Epworth Town of Lincolnshire. It is situated on the Isle of Axholme, and is 183 m. from London by the L.N.E. Rly. At the rectory here John Wesley was born. Pop. 1836.

Equation In algebra, a statement or formula expressing the equality of two quantities. The two parts of the equation are separated by the sign of equality, as for example, $3x = 21$.

The term chemical equation is used for the symbolic representation of a chemical reaction, the symbols of the reacting substances being placed on the left and those of the substance produced by the reaction on the right, as in $H_2 + Cl_2 = 2 HCl$.

Equator Circle drawn round the earth equally distant from the poles. Its plane cuts the earth's axis at right angles and it divides the globe into two halves, the northern and southern hemispheres. Latitude is measured north and south of the equator by small circles parallel to it, the equator being regarded as 0° of latitude. At the equinoxes the sun at noon is directly over the equator.

equerry Official of the royal household. The crown equerry is the head of the royal mews. Other equerries are members of the royal household who attend

upon the king on ceremonial occasions. The Prince of Wales, the Duke of York and other members of the royal family have equeuries.

Equilibrium State in which forces acting upon a body are so determined that they balance one another, giving no resultant at any point. In the case of a heavy body resting upon the ground, the weight of the body and the normal reaction of the ground are exactly equal and opposite. If a body returns to its position after being moved it is in stable equilibrium.

Equinox Period when the equator lies in the plane of the earth's orbit and day and night are equal in length in all parts of the world. The vernal or spring equinox occurs on March 21-22, the autumnal equinox on Sept. 21-22. The vernal equinox also marks the point in the heavens where the sun crosses the equator, this position being known as "the first point of Aries."

Equitation Horsemanship, especially for military purposes. The British army has a school of equitation at Weedon and there is one for the Indian army at Saugor.

Equites (Lat. horsemen.) Name of a class in Roman society ranking between the senators and the commons. Originally applied to those wealthy enough to serve as horse soldiers, the term became, on the development of the paid army, somewhat synonymous with knights.

Equity (Lat. *aequus*, equal). Term denoting moral right or justice, something based on the law of nature, not on legislation. In England in early days there were many cases where right could not be done, or wrong redressed, by the processes of the ordinary law. It became the custom to refer such cases to the chancellor as the keeper of the king's conscience. Ignoring the common law, he gave decisions according to the principles of equity, and in time a body of law and precedents grew up which was known as equity. This was administered by the court of chancery which proceeded usually by way of injunction and specific performance. Within its scope were all matters relating to trusts, etc., and others for which the common law did not provide. Since 1873 all the courts have administered both common law and equity, which is therefore no longer the sole privilege of the chancery courts.

An equity of redemption is the right which the mortgagor has to redeem the mortgaged property on payment of the mortgage money and interest, although the mortgagee is in possession. The right is lost if the mortgagee has exercised his power of sale or has completed a foreclosure.

Era Epoch from which years are counted and the series so reckoned. An historical event usually determines the choice, e.g., the Greek Olympiads, from 776 B.C., the Roman, from Rome's foundation, 753 B.C., the Hindu Saka, from A.D. 78, the Mohammedan, from A.D. 622 and the Christian from Christ's nativity. The pre-Christian is reckoned backwards.

Erasmus Desiderius. Dutch scholar. Born at Rotterdam, Oct. 28, 1466, he was an illegitimate son of a certain Gerard who figures in Charles Reade's novel, *The Cloister and the Hearth*. He took his father's name, but soon changed it to the one, half Latin, half Greek, by which he is known. He was educated at Deventer and was for six

years an Augustinian monk. In 1496 he visited England, and became a close friend of Sir Thomas More. He studied Greek with Linacre and afterwards taught that language at Cambridge, where he was Lady Margaret Professor of Divinity. In 1517 he settled at Louvain and in 1521 at Basel, where he died, July 12, 1536.

Erasmus was one of the great humanists. In religion he was a Roman Catholic and by birth a Dutchman, but his intellect could not be confined to one creed or one nationality. He sympathised with Luther and the Reformation, but was too great a scholar to be a keen partisan.

Erasmus did much literary work, chiefly editing the works of Latin writers, both secular and ecclesiastical. His great edition of the New Testament, Greek text and Latin translation, appeared in 1516. *Encomium Moriae* or *In Praise of Folly* and *Colloquia* are true revelations of his mind. His letters are interesting for their comments on England as he saw it.

Erbium Rare metallic element. Its atomic weight is 167.7 and specific gravity 4.77. It exists as a silicate in the mineral gadolinite and a few other minerals. Its oxide, erbia, obtained by ignition of some of its salts, is an earthy substance with a faint rose-red colour, a character shared by other compounds of the metal.

Erckmann-Chatrian Name used by two French writers for their joint work. They were Emile Erckmann and Alexandre Chatrian, both natives of Lorraine. Their literary partnership lasted for 30 years, from 1848. Their best works are those dealing with the Napoleonic wars. They have been translated into English, notably, *The History of a Conspiracy* and *Waterloo*. Their plays include the popular *Polish Jew*, produced in London as *The Bells*. Erckmann was born May 20, 1822, and died March 14, 1899. Chatrian was born Dec. 18, 1826, and died Sept. 3, 1890.

Ercole da Ferrara Name taken by the Italian painter, Ercole di Giulio Grandi. Born about 1462 he lived chiefly at Ferrara, where he was employed by the duke. Two of his pictures, "The Madonna and Child" and "The Conversion of St. Paul," are in the National Gallery, London. He died in 1531.

Erebus In Greek mythology, a god of the underworld. He was the husband of Night, who bore him Light and Day.

Erebus Volcano of Antarctica, in Victoria Land, it is situated on Ross Island and was discovered in 1841 by Capt. James Ross. It is 12,370 ft. high and has been active in recent years.

Erechtheum Temple at Athens. It was the original sanctuary of the tutelary deities of Athens, Athena Polias (Athena of the city), Poseidon and Erechtheus. It stood on the Acropolis, close to the Parthenon. Burnt by the Persians in 480, it was rebuilt in the time of Pericles and was finished about 409.

Eretria City of Greece. Situated on the west coast, 15 m. S.E. of Chalcis, its stubborn resistance to the Persian advance occasioned its destruction in 490 B.C. Its importance declined under Macedonian and Roman rule. American excavations at the

foot of the acropolis, 1890-95, exposed remains of theatre, temple and gymnasium.

Erfurt City of Prussia, Germany. It stands on the Gera, 11 m. from Weimar, and is an important railway junction. Its cathedral is one of the finest Gothic edifices in Germany and the palace was once the residence of the electors of Mainz. The industries include the making of railway stock, machinery, clothing, etc., and the market for vegetables and flowers is important. Erfurt was once a member of the Hanseatic League. In the Augustinian monastery Luther lived for some years. In the 19th century its fortifications were pulled down and its limits extended greatly, as it became a busy manufacturing centre. Pop. 148,200.

Erg In physics, unit of energy or work done. It is the quantity of work done by a force of one dyne moving through a distance of one centimetre. Power is expressed in ergs per second.

Ergosterol Unsaponifiable part of a natural fat, sterol (*q.v.*). Named from its discovery in ergot of rye, ergosterol is found also in yeast. It is present in minute proportion as an impurity of cholesterol found in all animal cells. When irradiated by sunlight, ergosterol in superficial tissue cells (skin, etc.) yields up the anti-rachitic vitamin D essential to health. Ergosterol in solution, irradiated by ultra-violet rays, is used to supply natural bodily deficiency in this vitamin, and is included in the 6th edition of the *British Pharmacopoeia*.

Ergot (*Claviceps purpurea*). Fungus which attacks the flowers of cereals and grasses. It shows three well-marked stages in its life history, each stage being formerly regarded as distinct fungi. The honey dew, or *sphaeria*, stage consists of a network of threads ramifying through the ovary and producing spores and honey dew; the winter, or *sclerotium*, stage forms a hard curved purplish body (ergot) and the spring, or *ascosporae*, stage which forms thread-like spores. Ergot of rye is used in medicine as a haemostatic and peristaltic agent. The eating of bread made from rye or other grain infected with ergot gives rise to a condition of chronic poisoning known as ergotism.

Ericht Loch of Scotland. It is on the borders of the counties of Perth and Inverness and is 1½ m. long. The River Erich, which flows from it to Loch Rannoch, 5½ m. away, is used to generate power for the national scheme for providing electricity. It has been widened and deepened and a dam has been built across it.

Eridanus In Greek legend, a river god. He was the son of Oceanus and Tethys and was called the king of rivers. It is also the name of a constellation of stars, part of which is below the horizon of the northern hemisphere.

Eridge Village of Sussex. It is 3 m. from Tunbridge Wells and 38 from London, on the S. Rly. **Eridge Castle**, the seat of the Marquess of Abergavenny, is a modern building standing in a large park.

Erie One of the Great Lakes of North America. It is the most southerly of the five, but the fourth in the chain, and covers 10,000 sq. m. Its length is 250 m., and its greatest breadth 60.

Its waters come by the River Detroit from the three higher lakes and pass by the Niagara River into Lake Ontario. The Welland Canal

(*q.v.*) enables shipping to pass between these two lakes. One side of the lake is Canadian and the other American. On the American side are the great cities of Buffalo and Cleveland.

Erie City and lake port of Pennsylvania. It is 88 m. from Buffalo on Lake Erie, and is well served by railways. There are a number of manufactures, but the shipping is of greater importance. For this there is a fine natural harbour formed by Presque Isle, on which a French fort was built in the 18th century. Pop. (1930) 115,967.

Erie Canal Waterway of the United States. It is 361 m. long and connects the Hudson with Lake Erie, its termini being Buffalo and Albany. It passes Utica, Syracuse and Rochester.

Erin Name for Ireland. Its origin is uncertain, but its general use dates from the time of Thomas Moore's poems. It occurs in the phrase Erin go bragh, or Erin for ever.

Erinus Variety of starwort, suitable for the rock garden. It is of low growth and bears purplish blue or white flowers in early summer. It grows in the Alps and is called *erinus alpinus*.

Eris In Greek legend, the goddess of discord. Angered at not being invited to the wedding feast of Peleus and Thetis, she threw a golden apple amongst the guests. This was to be given to the fairest and was claimed by Hera, Athena and Aphrodite. The question was submitted to the judgment of Paris.

Erith Urban district of Kent. It is on the Thames, 11 m. from London, and is served by the S. Rly. It is an engineering and yachting centre. At one time a borough and a naval station, Erith became an industrial district in the 19th century. Pop. (1931) 32,780.

Eritrea Colony of Italy. It is on the Red Sea, with a coastline of 670 m. Its other boundaries are the Anglo-Egyptian Sudan and Abyssinia. Asmara is the capital. The ports are Massawa and Assab. The area is 45,754 sq. m. and the population 407,474, of which 1681 are Europeans. Sheep, goats and camels are kept and the products include ostrich feathers, palm nuts and hides. Some gold is found. There is a railway line 258 m. long from the sea to the capital and beyond. Italy took possession of the land in 1885, and it was formed into a colony in 1889.

Erivan Capital of the Soviet Republic of Armenia or Hyastan. It was formerly the capital of the Trans-caucasian Government of Erivan, and stands on the Sanga, 40 m. from Ararat. Erivan was ceded to Russia by Turkey in 1828. Pop. 75,000.

Erl-King In German mythology an evil forest spirit. He was inimical to children and was gigantic, draped, bearded and crowned with gold. Herder's *Stimmen der Völker*, 1778, in translating *The Elf King's Daughter* confounds *elle* (Danish elf) with *erle* (German alder). The mistake was perpetuated and the Erl-King established as an alder wrath.

Ermine (*Mustela erminea*). White fur, with black-tipped tail. It is the winter coat of the stoat, which is native to Britain and to temperate and subarctic regions. It is largely used on state and judicial robes. In heraldry it is usually symbolised by black arrow heads crowned with three dots on a white ground.

Ermine Street Early English name for an ancient British highway leading from London through Lincoln to York and Hadrian's Wall. It was one of four reputedly enjoying royal protection, and coincided in part with the Romano-British road system.

Erne Old English name of the brown, white-tailed, sea eagle (*haliaetus albicilla*). Distributed throughout northern regions, it breeds in the wildest parts of Scotland and Ireland. Though distinguished by its broad-scaled toes and lack of leg-feathers, it is often confused with the golden eagle. The female sometimes reaches 3 ft. in length.

Erne River and lake of Ireland. The river rises in Longford and passes through the counties of Cavan and Fermanagh into Donegal. Near Ballyshannon it enters Donegal Bay. Its length is 72 m. Enniskillen is the chief town on its banks. It passes through two lakes called upper and lower **Lough Erne**. The upper is 13 m. long and the lower 20 m., and between them there is a distance of 10 m. In both are many islands and the lakes are rich in fish.

The Irish title of **Earl of Erne** has been borne since 1789 by the family of Crichton. The family seat is Crom Castle, Fermanagh, and the earl's eldest son is called Viscount Crichton.

Ernest King of Hanover. Fifth son of George III. of Great Britain, he was born at Kew, June 5, 1771, and educated at Göttingen, became an officer in the army of Hanover and saw service against the French. In 1799 he was created Duke of Cumberland and Teviotdale and for over 30 years took part in English politics as an antagonist of reform. In 1837, on the death of William IV., he became King of Hanover and ruled that country until his death, Nov. 18, 1851.

Eros Greek name of the god Cupid, (g.r.). It is also the name of an asteroid, discovered in 1898, when it came nearer to the earth than Mars. In 1901, and again early in 1931, it approached the earth; in the latter year, as near as within 16 million miles.

Erosion Denudation of the earth's surface by the action of wind, rain, the atmosphere, ice, rivers and sea. By these agents the forms of hills and valleys, cliffs and shore gradually become modified, rivers deepen their channels and silt up their estuaries, and lakes become marshes or dry valleys. See **COAST**.

Erroll Earl of. Scottish title held by the family of Hay. It was given in 1453 to William Hay, constable of Scotland, and has since been held by his descendants. The earl is still lord high constable of Scotland. His estates are in Aberdeenshire. The earl's eldest son is called Lord Kilmarnock.

Victor Alexander Hay (1876-1928), the 20th earl, was in the diplomatic service. In 1919 he was sent to Berlin as the first British representative there after the war. From 1921-27 he was British high commissioner in the Rhineland, being known as Lord Kilmarnock until he succeeded to the title on his father's death, July 8, 1927. He died Feb. 19, 1928. Josslyn Victor Hay, the 21st earl, was born in 1901.

Erse Word denoting the Celtic population, their speech and writing. It anciently migrated from N.E. Ireland to Scotland, and because of its Irish origin, Lowland Scots applied the word to the speech of the High-

landers, who themselves called it **Gaelic**. Nowadays it sometimes denotes the Goidelic language-group, embracing Scottish Gaelic, Irish Gaelic and Manx.

Erskine Baron. Scottish lawyer. Thomas Erskine, born in Edinburgh, Jan. 10, 1750, was a son of the Earl of Buchan. He was called to the bar in 1778. He sat in Parliament as a Whig in 1783, and again in 1790-1806. In 1806 he was made lord chancellor and a peer, but held office only for a few months. He died Nov. 17, 1823. His barony is still held by his descendants.

Henry Erskine, Erskine's elder brother, was also a successful lawyer. He was lord advocate of Scotland in 1783 and again in 1806-07. He died Oct. 8, 1817.

Ervine St. John Greer. Irish writer. Born in Belfast, Dec. 28, 1883, he early began to write plays and made his name as a dramatic critic. Among his plays are: *Jane Clegg*, *Mary*, *Mary Quite Contrary* and *The Second Mrs. Fraser*. He has also written novels, including *The Foolish Lovers* and *The Wayward Man*, short stories, and a life of Parnell.

Erysipelas Acute contagious disease, characterized by redness of the skin, especially of the face. It is due to a specific micro-organism, *Streptococcus pyogenes*, introduced through a wound or abrasion, sometimes in the tear duct, or through a cut whilst shaving. Clothing and bedding may convey it. There is sometimes swelling and delirium. Attacks last from 7 to 21 days, but are usually followed by a recovery. Iodhydrol, iron perchloride and other internal preparations are sometimes administered; injections of antistreptococcal serum often, but not invariably, prove beneficial.

Erzerum City of Turkey. It is 120 m. south-east of Trebizond and lies to the north of Lake Van on the River Kara-su or Western Euphrates. Situated in a wide pastoral plain hemmed in by mountain ranges, it is an important town on the trade route between Persia and Europe. Lignite and salt are found near. It was the scene of Armenian massacres in 1895 and 1915. Pop. 30,800.

Erzgebirge Range of mountains in Central Europe. They form part of the boundary between Saxony and Bohemia, rising in places to over 4000 ft., and sloping gradually on the northern side and more precipitously on the south. A great variety of metallic ores, chiefly lead, tin, copper, silver and iron, abound on both Saxon and Bohemian sides.

Esau Son of the patriarch Isaac, and Jacob's elder twin brother. He sold his birthright to his brother for a meal of lentils, and thereby lost the paternal blessing.

Esbjerg Seaport of Denmark. The construction of an excellent harbour has transformed it from a small village into the chief port of West Jutland. Fishing is an important industry and its exports include bacon, dairy produce, beef and cattle. Pop. 24,100.

Escalator Moving stairway. It has been adopted in many stations on the London tube railways. It is driven by electric power and consists of an endless chain of steps passing round rollers at the top and bottom of the escalator, each step being fixed to a framework having two wheels not set in the same line. It requires less attention

and carries more passengers in a given time than the ordinary type of lift.

Escarment Term applied to the steep abrupt slope of strata. It is due to the denudation of the softer underlying beds leaving the outstanding hard rock as a cliff-like ridge in one direction, and a gentle dip-slope in the other. One of the commonest forms of land surface, it occurs usually in areas of gently inclined beds. The North and South Downs, the Cotswolds, Snowdon and Scafell show good examples of escarpments.

Escheat Word meaning the return of land to its original owner. In feudal times the theory was that land was held from the king, and that when a man died without heirs it reverted to him. Similarly, land let out to vassals by other landowners reverted to them under like conditions. Until abolished in 1925, it was the law of England that the land of all who died without heirs reverted to the crown.

Escudo Coin current in various countries. It replaced the milreis as the monetary unit in Portugal at the 1911 revolution, having a par value of 4s. 51d., divided into 100 centavos. One thousand escudos make a conto. In Spain and Chilo also the escudo is current.

Escorial Palace in Spain, one of the largest in the world. Designed for Philip II. It is situated amid the mountains, 26 m. from Madrid. The form is rectangular and the style Doric. In the centre is a fine church, and the Parthenon where the kings and queens of Spain are buried. Among the buildings, which cover 10 acres, are also a convent and a valuable library.

Esdras Books of. First two apocryphal books of the Old Testament. The Vulgate calls the canonical books Ezra and Nehemiah 1 and 2 Esdras, making these apocryphal scriptures 3 and 4 Esdras. The earlier virtually repeats the last two chapters of 2 Chronicles, followed by Ezra and Nehemiah, incidentally interpolating an apocryphal story of three pages at Darius's court, iii.-v., 6. It was written for Alexandrian Jews between 300 B.C. and 100 B.C. The other is apocryphal, chiefly describing seven visions vouchsafed to Ezra, and was probably written under Domitian, A.D. 81-96.

Esh Town of Durham. Situated 5 m. W.N.W. of Durham, it is near Ushaw Moor colliery. Here is the Roman Catholic College of S. Cuthbert, founded in 1804 for the dispossessed seminary at Douai. The chief industry is coal mining. Pop. 10,175.

Esher District of Surrey, an outer suburb of London. Forming with the Dittons an urban district, it is 15 m. from the city on the S. Ry. The Bear Inn is interesting. **Esher Place** once belonged to Wolsey and a tower of his palace still stands. Later it was the residence of Lord D'Abernon, who sold it in 1928 to the Shaftesbury Homes. Sandown Park racecourse is near. Pop. (1931) 17,075.

Esher English title held since 1897 by the family of Brett. **William Baiol Brett** was born Aug. 13, 1817, and educated at Westminster and Caius College, Cambridge. He became a barrister in 1840 and in 1866 a Conservative M.P. In 1868 he was made solicitor-general and in the same year a judge. In 1883 he became Master of the Rolls and in 1895 was made a baron. He retired and was

made a viscount in 1897 and died May 21, 1899.

His son and successor, **Reginald Baiol Brett**, the 2nd viscount, was born June 30, 1852, and educated at Eton and Cambridge. From 1880-85 he was Liberal M.P. for Penryn-Falmouth, and from 1895 to 1902 secretary to the Office of Works. In 1904 he was chairman of the committee of inquiry concerning the War Office. He was joint editor of *The Letters of Queen Victoria*. He died Jan. 22, 1930, when his son, **Oliver**, became the 3rd viscount.

Esk Name of several British rivers. One flows through the counties of Dumfries and Cumberland into the Solway Firth and is 36 m. long.

The **North Esk** is formed by a union of the Lee and the Mark at Invermark. It flows through the counties of Forfar and Kincardine into the North Sea near Montrose and is 29 m. long.

The **South Esk** rises in the Grampians and flows through Forfar for 49 m. and enters the sea at Montrose. A small stream in Midlothian is called the **Esk**. It rises in Dalkeith Park and joins the Firth of Forth at Musselburgh.

Eskimo N. American Indian people. They inhabit the Arctic coast from E. Greenland for 5000 m. westward across the Bering Strait to Siberia, and number about 30,000. They live by hunting the musk ox, reindeer and seal. They occupy in summer conical skin tents, in winter earth huts half underground called igloos. Their one-man skin canoes (kayaks) and larger cargo or women's boats (umiaks), show constructional skill.

Eskimo Dog Breed of dog used as a draught animal by the Eskimos. They are milder rather than domesticated, the females being often crossed with wild wolves, from which they differ by having the dog's characteristic upturned tail. They are trained to pull sledges, and usually work in four-pair teams.

Esmond **Henry Vernon**. Pseudonym of H. V. Jack, an English dramatist. Born Nov. 3, 1869, he became an actor and playwright. In 1895 he won a success with *Bogey*, and others followed. Perhaps the most popular are *Eliza Comes to Stay*, *The Dangerous Age* and *Birds of a Feather*. He died April 17, 1922.

Espalier Term denoting a lattice work or a row of timber stakes, preferably larch, upon which fruit trees, bushes and flowering plants are trained. Its purpose is to provide freer air circulation, better exposure to the sun and easier access. The term also denotes the tree so trained, with a main stem whence the branches extend horizontally right and left in ascending tiers.

Esparto Grass (*Stipa tenacissima*.) Tall perennial grass native to S. Spain and N. Africa. Also called halfa, its grey-green tufts serve when young as cattle food, but after several years furnish a very tough and tenacious fibre, useful for making cables, baskets, matting, sandals and paper. Another grass, *Lygeum spartium* also supplies esparto fibre. It is an important ingredient in the making of paper.

Esperanto Artificial, international auxiliary language. Invented by Dr. Zamenhof, a Polish oculist, and published in 1887, it quickly became the leading system purporting to establish ready communication between persons of different native speech.

Phonetically spelt, it adopts about 2500 selected roots, with 30 word-forming prefixes and suffixes, logically applied.

An international academy and a language committee, centred in Paris, exercise control. More than 1000 books have been issued, 100 magazines appear regularly, and various commercial schools hold classes. Annual international congresses are held, and nearly 50 broadcasting stations systematically transmit Esperanto programmes. Esperanto is officially recognised as a telegraphic language.

Esquiline Hill See ROME.

Esquimalt Seaport of British Columbia, Canada. Situated on Vancouver Island, it is 3 m. from Victoria, and has a fine harbour. It is a base of the Canadian Navy, and has large docks, etc. Shipbuilding is the chief industry. The town is on the C.P. and C.N. Ry's.

Essay Trial or experiment. It refers now almost invariably to a written composition dealing with a single subject. Some essays are literature of a very high order such as the *Essays of Bacon* and Montaigne, and Lamb's *Essays of Elia*. Other notable essayists include Joseph Addison, William Hazlitt and Lord Macaulay and more recently Matthew Arnold, Robert Louis Stevenson and Augustine Birrell. Notable American essayists are Emerson, Holmes, and Lowell. Pope's *Essay on Man* is in verse.

Essen Town of Prussia. It is on the Westphalian coalfield, 22 m. from Düsseldorf and is well served by railways. The mine is one of the oldest chivalries in Germany. Here are the gigantic engineering works of Krupp. Before and during the Great War, these turned out huge quantities of war material. Pop. (1931) 629,564.

Essence Solution of the more important constituents of certain substances. In most essences the solvent is alcohol, but in a few water is used. In medicine drugs containing oils soluble in alcohol are sometimes used in the form of essences, examples being the essences of peppermint, ginger and anise. Many alcoholic essences are used in perfumery.

Essential Oils Oils, present in many plants, which tend to evaporate in contact with the air. This property accounts for their alternative name of volatile oils. They form the principles which give aroma to plants, and are used in perfumery and as flavouring agents. The oils are obtained by steam distillation, or by means of a volatile solvent and maceration with fats or fixed oils.

Essex County of south-east England. It is 1530 sq. m. in area and lies just north of the Thames with a very irregular coastline on the North Sea. It includes Canvey, Mersea and other districts which are islands at high tide, also Epping Forest. The land is mainly flat, with some hills in the centre and north-west.

The chief rivers are the Colne, Stour and Crouch, which form large estuaries. The Thames divides it from Kent and the Lea from Middlesex and Hertford. Other rivers are the Blackwater, the Chelmer and the Roding. Chelmsford is the county town. Other boroughs are West Ham, East Ham and Walthamstow, which are within the London area; Maldon, Colchester, Saffron Walden, Southend-on-Sea, Harwich and Barking (made a borough in 1931). Harwich is the chief port.

The chief watering places are Southend, Westcliff, Clacton, Frinton and Dovercourt. Essex is served by the L.N.E. and L.M.S. Ry's. It is in the diocese of Chelmsford and sends 8 members to Parliament. The population of the administrative county was 1,198,601 in 1931. This showed the enormous increase of 278,160 during the 10 years, 1921-1931.

The **Essex Regiment**, formerly the 4th and 56th Foot, dates from 1741. The castle and key on the regimental badge commemorate their service at the siege of Gibraltar (1779-83). Many battalions served in the Great War. The regimental depot is at Warley.

Essex Earl of. English title held by the families of Bohun, Devereux, Capel and others. The first Earl of Essex was appointed soon after the Norman Conquest, and one of the earls was the famous Geoffrey de Mandeville. The Bohun family held the earldom for some time in the 13th and 14th centuries and there were other earls, including Thomas Cromwell, created earl in 1540. In 1572 Walter Devereux was made Earl of Essex and the title was held by his son and grandson, but became extinct in 1616. In 1661 Arthur Capel was made earl and his descendants still hold the title. Cassiobury Park, Watford, long the family seat, has been sold. The earl's eldest son is called Viscount Malden.

Essex Earl of. English courtier. Robert Devereux, the famous favourite of Queen Elizabeth, was born Nov. 19, 1566, and succeeded his father as 2nd earl in 1576. He was with the English forces in the Netherlands, and was sent to Ireland as governor-general in 1599. For leaving his post without permission, he was imprisoned. Soon after his release he led a rebellion which was a failure and he was executed Feb. 25, 1601.

His son, Robert Devereux, born in 1591, was restored to the earldom in 1601. He, too, was a courtier and a soldier, seeing service in Germany and against Cadix. In 1612 he was appointed commander-in-chief of the parliamentary army and he kept that position until 1615. He died Sept. 11, 1616.

Es Sinn Village of Iraq, or Mesopotamia. It is 7 m. from Kut-el-Amara, and here in Dec., 1915, the Turks had a strong position. This was attacked in March by the British force advancing to the relief of Kut, but it was found impossible to dislodge the Turks before the garrison under Sir C. Townshend rendered.

Establishment Position of some religious bodies in relation to the State.

An established church is one officially recognised as the church of a nation. Generally such recognition has a legal basis and is coupled with State endowment. Christianity was first made a State religion by the Emperor Constantine in the 4th century. After the Reformation the English Church became established, but not the (Presbyterian) Church in Scotland. It was partly an objection to State control which later led to the founding of the Independent and Baptist Churches.

Estaires Town of France. It is 13 m. from Lille and was the scene of much fighting in 1918. On April 10, 1918, after a fierce fight, the Germans captured it from its British defenders, but they were driven out in the following September.

Estate Term used for property, especially landed property. It may refer

to a considerable amount of land, owned by a single person, or to the whole of a person's property. Originally it meant a state, as in the Prayer Book, "The good estate of the Catholic Church."

Estate agent is the term used for a man who undertakes to manage and to buy or sell property. There is a college of estate management at 35 Lincoln's Inn Fields, London, W.C.2. Estate agents are usually paid by a percentage on the amount they collect or obtain from sales. This is 5 per cent. on small amounts, grading down to 1½ per cent. on large ones.

Estate Duty Name given to one of the duties paid on the money left by persons at death. The other duty is the legacy duty. The estate duty was introduced in 1891, and is payable on all property left. It is graduated according to the amount. In 1930 the scale was fixed as follows:

£500 to	£1,000	..	2 per
£1,000 ..	£5,000	..	3
£5,000 ..	£10,000	..	4
£10,000 ..	£12,500	..	5
£12,500 ..	£15,000	..	6
£15,000 ..	£18,000	..	7
£18,000 ..	£21,000	..	8
£21,000 ..	£25,000	..	9
£25,000 ..	£30,000	..	10
£30,000 ..	£35,000	..	11
£35,000 ..	£40,000	..	12
£40,000 ..	£45,000	..	13
£45,000 ..	£50,000	..	14

From this the rate rises until it becomes 10 per cent. on an estate between £1,000,000 and £1,250,000, and 50 per cent. on an estate worth £2,000,000 and over. Money or property given away during the three years before death is charged with duty; estates under £500 pay an inclusive fee of 50s. or 30s., which include all charges. Interest at the rate of 4 per cent. is charged on the amount due.

Este Famous Italian family. It takes the name from a city, 20 m. from Ladua. Dating from about 1000, its earliest members were lords of Este. In 1452 one of them was made Duke of Modena and then Duke of Ferrara. Beatrice (1475-97), Duchess of Milan, was famous for her beauty and culture. Another notable member was Ippolito d'Este, who became a cardinal and built the Villa d'Este at Tivoli. The family lived in great state at Modena until 1797, when the duchy was taken from them and, in 1803, Ercole, the last male member of the family died. His daughter, Maria Beatrice, married a son of the Emperor Francis I. of Austria and their son regained Modena, which was held by the family of Hapsburg-Este until 1859. Maria Beatrice, wife of James II., was a member of the Este family.

Esterhazy of Galantha. Noble Hungarian family. Of the three branches of the family, that of Forchtenstein bulks most largely in history. Nicholas (1582-1645) fought long to free Hungary from the Turks, defeating them himself in 1623. His son, Paul (1635-1713), founded the princely branch of the family. He helped to deliver Vienna from the Turks in 1683, was a devoted supporter of the Hapsburgs, and was made a prince of the Holy Roman Empire in 1712.

Nicholas Joseph (1714-90) was both a brilliant soldier and a patron of the arts. As general music director of his court for thirty years, Joseph Haydn (q.v.) wrote many of his compositions for his private orchestra. His grandson, Nicholas (1765-1833), a great art collector, raised troops and fought against

Napoleon. He was offered the kingship of the Magyars in 1809, but refused the honour.

Paul Anthony (1786-1866) was ambassador in London after the Napoleonic wars, and in 1848 was foreign minister in the first responsible Hungarian ministry. He died in comparative poverty, the fruit of his reckless extravagance.

Esther Book of. Book of the Old Testament. It narrates an episode at the court of the Persian King Ahasuerus (Xerxes) in Susa, 5th century B.C. The royal consort Vashti was deposed, and her place taken by Esther, related to a Jewish exile, Mordecai. Esther and Mordecai frustrated the plots of the grand vizier, Haman, against the Jewish people, whose deliverance was thereafter commemorated by the Purim festival. Written after 300 B.C., the Book of Esther was expanded by Maccabean additions which form a separate section of the Old Testament Apocrypha.

Estimate Calculation of probable cost; a provisional valuation. In building, printing and other business transactions it is usual for the prospective customer or client to ask for a statement giving an estimate of probable cost. He often asks for two or more estimates from different firms in order to compare one with another.

In parliamentary procedure the proposed expenditure of the country is put before the House of Commons in the form of estimates. These are divided into navy, army, civil service and other branches and each shows the amount of money required for the coming financial year. After they have been passed the Chancellor of the Exchequer can frame his budget. Each year the House appoints a committee to examine the estimates and report on them.

Eston Urban district of Yorkshire (N.R.). It is 213 m. from London by the L.N.E. Rly. Iron ore is mined, and there are iron and steel works. Pop. (1931) 31,142.

Estonia Republic of Europe. On two sides its boundaries are arms of the Baltic Sea, on the south is Latvia, and on the east Lake Peipus and Russia. It covers 18,353 sq. m., and its population is 1,116,500. The capital and chief seaport is Tallinn (Reval). The next largest place is Tartu (Dorpat), where is the national university. The republic is divided into eleven districts and includes Oesel, Dagö, Moon and other islands in the Baltic. In religion the people are chiefly Lutherans.

From 1721 to 1917 Estonia was part of Russia, and before then part of Sweden. Its independence was proclaimed in 1918, and in 1920 was recognised by Europe. The constitution consists of an assembly of 100 members elected by all adult citizens for three years. The assembly chooses the prime minister and the other ministers. Agriculture and dairy farming are the chief industries. Rye, wheat, barley, oats and potatoes are grown. Butter and other farm produce and timber form the chief exports. Military service is compulsory. The unit of currency is the kroon, worth about 1s. 1½d. and divided into 100 cents. The national flag is blue, black and white in horizontal stripes.

Estuary Mouth of a river, where river waters meet the sea, the effect of the currents causes a gradual mixing of the waters, and where the river is large, as in the Thames, the surface of the estuary may be fresher than at a greater depth.

Étaples Town of France. It is 17 m. from Boulogne at the mouth of the little river called the Canche. Fishing is carried on and there are some small industries. In 1492 the treaty of Étaples was made between Henry VII. and the French king. Pop. 6000.

During the Great War Étaples was an important British base, with training grounds, hospitals, etc. There is now a large cemetery near the town.

Etching Method of engraving on metal. The design is engraved by means of an acid solvent or by the use of special tools for cutting directly on the metal. In the acid process the metal plate (generally of copper) is covered with a ground or coating of wax, bitumen or other resinous material, the design or drawing being traced through the ground by means of fine or coarse steel points or etching needles. The plate is then treated with nitric acid, or other solvents in the case of other metals, and on completion of the process the wax layer is removed by the use of turpentine. Albrecht Dürer was one of the earliest etchers, and Reinbrandt the greatest.

Ethelbert King of Kent. A descendant of the Saxon invaders of England, he is believed to have reigned between 560 and 615. Counted as one of the Bretwalda or overlords of Britain, he issued some laws which are still extant; but he is best known as the husband of Bertha, a Frankish princess and a Christian, who invited missionaries to England. In 597 he was baptised by S. Augustine.

Ethelred Name of two English kings. Ethelred I., a son of Ethelwulf, King of Wessex, became king in 866 in succession to his brother Ethelbert. He spent his time fighting the Danes, being assisted by his young brother Alfred. His death on April 23, 871, was caused by wounds received in battle.

Ethelred II., was a son of King Edgar. He began to reign in 973, when only ten, and was on the throne for nearly 40 years. His inability to deal with the Danish peril won for him the name of the Unready. He began the payment of Danegeld, and in 1002 was responsible for a massacre of the Danes. He died in London, April 23, 1016.

Ether Colourless, volatile and very inflammable liquid. It is prepared by distilling alcohol with sulphuric acid. Owing to its solvent action upon fats, oils, resins and alkaloids, it is used in the preparation of coal tar dyes, artificial silk, cordite, collodion and many medicinal compounds, and in wet plate photography.

As it evaporates rapidly, producing a sensation of cold, ether is used as a local anaesthetic in minor operations. It is also used by inhalation, as a general anaesthetic, since it causes less depression on the heart than chloroform. Ether for medicinal purposes is prepared from pure alcohol, but for ordinary commercial use from methylated alcohol.

Ether Name given to the subtle medium that was assumed to fill all space (including that between atoms and electrons), in order to explain the propagation of light, heat and other electro-magnetic waves. The necessity for the assumption of such a medium has now been overcome.

Etherege Sir George. English dramatist. Born in 1634, he became a lawyer and a courtier. In 1664 his comedy,

The Comical Revenge or Love in a Tub was produced in London, followed by *She Would if She Could* and *The Man of Mode*. From 1685 to 1688, he was ambassador in Ratisbon, and died in 1690.

Ethics Science of moral values. Zeno of Citium, in Cyprus, in the 3rd century B.C. was one of the first to set up a scientific system of ethics. Virtue is the only good and baseness the only evil; all else is *adiaphora* (indifferent). The correct knowledge of virtue is acquired by *prônêsis* (practical wisdom), and the aim of life should be "to live in complete agreement with nature." The wise man knows and can do everything; he is rich in poverty, free in chains, happy in sickness, even at death.

Ethiopia Official name for Abyssinia. The Greeks for the people of Africa in general who, to them, were Ethiopians; meaning "people with burned faces." They are mentioned in both Homer and Herodotus. In the 11th century B.C. there arose a kingdom of Ethiopia and early in the Christian era another was set up. See ABYSSINIA.

Ethnography Description and classification of human races and peoples according to their geographical distribution. It furnishes the material for ethnology.

Ethnology Study of the distribution and development of human races. It treats of those racial distinctions which attend the material and intellectual elements of human culture, calling in the aid of specialised inquiries dealing with the primary needs of food, clothing and shelter, and the social, artistic, economic, political and religious elements in human life.

Assuming a single origin for mankind, the ethnologist makes a general classification of past and present races, which he summarises as brown, black, yellow and white. He finds that racial admixture has been operative throughout all human history, and that physical development is unaffected by language relationships, there being peoples, e.g., the Celts, united more closely by speech than by race. The study of tribal customs and relations is of importance in the administration of native peoples.

Ethyl Organic radical, or group of atoms capable of behaving like an element, having the chemical formula C_2H_5 . It forms a number of important compounds, such as ethyl alcohol, ethyl chloride and ethyl nitrate. Of recent years the term **ethyl petrol** has been used for petrol containing lead tetraethyl to form an "anti-knock" compound.

Ethylene Colourless gaseous hydrocarbon. It was formerly known as olefiant gas and is prepared by strongly heating alcohol with sulphuric acid. Ethylene is very inflammable, burns with a luminous flame and is explosive when mixed with oxygen. A considerable quantity of ethylene is present in coal gas and imparts to it much of its luminosity. Several of its compounds are of value, e.g., ethylene bromide, which is used in medicine and in the preparation of ethyl petrol.

Etive Sea loch of Scotland. It is an opening of the coast of Argyllshire and is about 20 m. long. The River Etive, which flows into it, is noted for its salmon.

Etna Volcano of Sicily. It is situated near the east coast and rises gradually to

a height of about 10,865 feet, forming a large cone, cleft on one side by the Valle del Boye and a number of smaller cones. The base of the volcano covers over 100 sq. m. and consists of a large expanse of fertile soil. Over eighty eruptions have been recorded since the one described by Pindar in 476 B.C. The eruptions of 1923 and 1928 caused considerable damage.

Etia is famous in classical mythology, chiefly perhaps as the place where Vulcan had his forges.

Eton Town and urban district of Buckinghamshire. It stands on the Thames opposite Windsor, which is its station, and is 21 m. from London. Pop. (1931) 2005.

ETON COLLEGE. One of the great public schools. It was founded in 1440 by Henry VI. The head of the foundation is the provost, but the headmaster is the head of the school. It consists of about 1100 boys, of whom 70 have scholarships and live in college. The rest are oppidians and live in houses outside the college. The school has its own customs and games, including the wall game of football. Many great men have been educated here.

Etretat Watering place of Normandy. It stands on the English Channel 16 m. from Havre. The attractions include a casino, gardens and bathing. Pop. 2000.

Etruria District of Italy, now known as Tuscany. Before the rise of Rome it was inhabited by a people who have left traces of a remarkably high civilisation, to which it is almost certain Rome owed a good deal. The sculptured tombs and the paintings found on vases and other pottery display not only a keen artistic sense, but also the possession of gold, silver and other metals used for decorative purposes. The Etruscans were also acquainted with music.

Etruria District of Staffordshire now included in the city of Stoke-on-Trent. It has a station on the L.M.S. Rly. Josiah Wedgwood opened his pottery works here in 1769, imitating Etruscan and other ancient vases.

Etruria maris are beds of marl and clay found in the north and midland counties of England and used for the making of pottery.

Ettrick District of Scotland, called Ettrick Forest. A forest only in name, it is chiefly in Selkirkshire, with portions in the counties of Midlothian and Peebles. The kings of Scotland hunted here. The poet, James Hogg, is known as the *Ettrick Shepherd*. **Ettrick Water** is a river of Selkirkshire. It is 32 m. long and joins the Tweed near Selkirk. **Ettrick Pen** is a hill in the county.

Etty William. English artist. Born at York, March 10, 1787, he studied at the Royal Academy School and under Sir Thomas Lawrence. Elected R.A. in 1828, he was a brilliant colourist and flesh painter. His best known works are *YOUTH at the Prow*, in the National Gallery, London, *The Combat* in Edinburgh, and *Ulysses and the Sirens* in the Royal Institution, Manchester. He died Nov. 13, 1849.

Etymology Study of the derivation and original significance of words. A modern study, much attention is paid to it by students of languages, especially in Germany. In English there is a valuable *Etymological Dictionary* edited by W. W. Skeat.

Euboea Largest island of the Aegean Sea. Belonging to Greece, it is separated from the coast by Euripus Strait, which is bridged at Chalcis, the capital. It is 90 m. long, and occupies 1430 sq. m. Mt. Delphi, 5725 ft. high, rises in the centre from fertile lowlands, which produce corn, wine, oil, fruits and cattle. Hot sulphurous springs, esteemed by Sulla, still function and many minerals and ores are mined here. Pop. 154,500.

Eucaine Drug used as an anæsthetic. Prepared artificially, it is an alkaloid not unlike cocaine, but less powerful. It is used by dentists.

Eucalyptus (Gr. *eu* well, *kalyptos*, concealed). Genus of evergreen trees and shrubs of the order Myrtaceae. The name is derived from the protective covering on the buds which is shed when the flowers open. The blue gum, *E. globulus*, yields an aromatic oil with antiseptic and medicinal qualities, which is used in affections of the throat and lungs. The trees grow chiefly in Australia.

Eucharist One of the names for the sacrament of the Lord's Supper. The word, denoting thanksgiving, was applied to the consecrated elements, and then to the whole celebration, which passed into the sacrifice of the Mass. At the Reformation, the Anglican church adopted the term Holy Communion; some other Protestant churches adhere to the original name, the Lord's Supper. The Roman Catholic Church and high churchmen in the Anglican church use the term Eucharist.

Euchre Card game. It can be played usually by two players. Of the pack, the 2, 3, 4, 5, and 6 of each suit are discarded, and of the remaining cards the dealer gives five to each player, turning up the top one of the balance to fix the trumps. Each player in turn can decide to play or to pass; if he plays he is entitled to the trump card in exchange for one of his own. Two cards make a trick, three tricks make a point, and five points make a game. Euchre can be played by four persons.

Eucrase Rare mineral. It is composed of hydrated silicate of beryllium and aluminium and contains 1.7 per cent. of beryllium oxide. It is found at Minas Geraes in Brazil, in Austria and in the Ural Mountains in the form of extremely brittle striated prisms, which may be colourless or yellow, green or blue.

Euclid Greek mathematician. He taught at Alexandria about 300 B.C., and was the founder of mathematical literature. Of his numerous works, we still possess his *Stoicheia* (Elements of Mathematics), which were used until comparatively recent times as the foundation of all geometrical text books. They are in fifteen volumes, of which the thirteenth and fourteenth were added by Hypsicles. Other extant works are *Data*, 95 geometrical propositions, and an astronomical treatise *Phænomena*.

Eucleides Greek philosopher. He flourished about 400 B.C. and was a pupil of Socrates. He founded the Megarian school, which was chiefly known for its cultivation of dialectics. The school unites the doctrines of Socrates with those of the Eleatics, and identifies that which exists with the good; that which is not good does not exist. The good is unalterable, one and similar, always the same; it is the intelligence, the reason, God.



ETHNOLOGY.—Characteristic facial contours of the main racial types. 1. Australian Aboriginal. 2. Negro. 3. Greek (ideal type). 4. Mongol. 5. Alpine. 6. Nordie. 7. Mediterranean. 8. Hebrew.

Eudiometer Instrument used for analysing gaseous mixtures. It consists of a graduated straight or U-shaped glass tube sealed at one end and open at the other, with two platinum wires inserted near the closed end to allow of the passage of an electric spark. The tube is filled with mercury and inverted in a mercury pneumatic trough. The gases are introduced and a spark passed through the mixture, the analysis being determined by the diminution of volume.

Eudocia Name of two East Roman empresses. (1) **Eudocia Augusta**, a Greek sophist's daughter, was converted by Pulcheria, sister of Theodosius II., whom she married in 421. Banished in 440, she retired to Jerusalem, and was the author of several literary compositions. (2) **Eudocia Macrembolitissa** was the consort of Constantine X. At his death she married Romanus IV. in 1068, but abdicated in 1071 to become a nun.

Eugène Italian prince and soldier. The son of a prince of Savoy, he was born in Paris, Oct. 18, 1663, his mother being a Frenchwoman. He served his life as an officer in the Austrian army, being almost continuously in the field. He fought first against the Turks and then in Italy against the French. In 1697 he won one of his great victories at Zenta, against the Turks. In the war of the Spanish Succession he ranked with Marlborough as a leader of the Allies. The two won Blenheim together and later Oudenarde and Malplaquet: in the meantime Eugène had taken Turin.

Having helped to make peace in 1714, Eugène was able in 1716 to command an army which defeated the Turks, and took Belgrade. In 1734 he fought his last battles, once more against France, and died April 27, 1736.

Eugenics Study of the factors which may improve or impair the physical and mental racial qualities of future generations. The modern science owes its inception to Sir Francis Galton (*q.v.*), whose anthropometrical studies led to the collection of valuable statistics relating to the problems of inheritance. A further advance in eugenics was made by the Mendelian research into the laws governing the transmission of hereditary physical characters. There are now specialised branches dealing with such questions as the encouragement of procreation of children by individuals of sound stock, the reduction and prevention of mental deficiency and general preventive measures of hygiene and social form.

Eugénie Empress of the French. She was born at Granada, Spain, May 5, 1826, the daughter of the Spanish count of Montijo; her maternal grandfather was a Scot named Kirkpatrick. She met the emperor Napoleon III. in Paris in 1851, and the two were married in 1853. Her career was divided into two parts. From 1853 to 1870 she was the centre of a brilliant and luxurious court; from 1871 to her death she was an exile in England. She lost her husband in 1873 and her only child, the Prince Imperial, in 1879. She lived at Chislehurst and then at Farnborough, but died in Spain, July 11, 1920. She was buried at Farnborough.

Eugenol Substance obtained from cloves. It is obtained by distillation of the oil and also from the oil of the pimento leaf. It is used in medicine as a carminative and in cases of toothache. It is also used to make vanillin.

Eulens

Tyl. A popular German character, and the title of a sixteenth century chapbook. The son of a peasant, born at Knettingen in Brunswick, in the fourteenth century, he played practical jokes and tricks on tradespeople, priests, princes, and especially innkeepers. In England, his tricks became anglicised, and were attributed to Robin Goodfellow.

Eumæus In Greek story, the swineherd mentioned in Homer's *Odyssey*. He was in the service of Penelope, during her husband's absence, and to him Odysseus made himself known when he arrived home in disguise.

Eumenides (The kindly.) In Greek mythology, a name given to the Erinyes or Diræ (the Furies). Three in number. Tisiphone, Megæra and Alecto, they were the ministers of divine vengeance, who punished the guilty by plague, war and the stings of conscience. After they had ceased to persecute Orestes for slaying his mother Clytemnestra, they were called Eumenides, and a temple was erected by him in their honour. They were represented in black garments, with serpents instead of hair. The Eumenides is the title of a tragedy by Aeschylus.

Eunuch Word denoting bedkeeper, applied to a chamberlain in Western Asia and Egypt, and, later, at the Byzantine court. He was generally an emasculated man, but the term was extended to any castrated attendant of bedchambers or of women's quarters in polygamous households, the position, in princely establishments, often conferring great political influence. At one time male chorists, retaining their boyish voices through castration, sang on the Italian stage, and even in the Sistine chapel, Rome, but the practice ceased in 1878.

Eupen Town of Belgium. It stands on the Weser, 10 m. from Aix-la-Chapelle, and is a busy industrial centre. The French name for it is Neux. Pop. 14,000.

Eupen is the capital of a fertile district or circle which has been a subject of European concern. It was part of the Austrian Netherlands before it became French in 1801. In 1814 it was given to Prussia, who retained it until 1919, when, with Malmédy, it was ceded to Belgium. The combined area of Eupen and Malmédy is 382 sq. m., and the population 60,213. In 1925 they were joined to the province of Liège.

Euphemism Figure of speech which describes an offensive or unpleasant thing in an indirect way. An example is to describe a lie as a terminological inexactitude.

Euphonium Brass musical instrument. It is a member of the saxhorn family, and is identical with the tuba in shape. Its pitch is an octave lower than that of the cornet, and it is the chief bass solo instrument in military bands.

Euphrates Largest river of W. Asia. It is formed by the union of two rivers, the Kara Su and the Murad Su, which rise, the former in the Dumlul Dagli, the latter in the Ala Dagli. Piercing the Taurus Mountains, the stream flows south by west until nearing Aleppo, it turns south-east and runs through Syria and Iraq, joining the Tigris to form the Shatt-el-Arab. It has a total length of 1800 m. Babylon stood upon its banks.

Euphuism Affected English prose style fashionable in the late 16th

century. It was introduced by John Lyly in *Euphues*, the *Anatomy of Wit*, 1579, and *Euphues and his England*, 1580. Characterised by bombastic vocabulary, balanced antithesis, abundant alliteration and classical allusion, it had but a short vogue.

Eurasian Indian term originally denoting the children and their descendants of Hindu mothers and European, especially Portuguese, fathers. Chee-chee is an alternative term. The Indian census now calls them Anglo-Indian. Generically the term denotes any individual of mixed European and Asiatic blood, and also physical or ethnic characters common to both continents, e.g., the Eurasian steppes.

Eureka Exclamation, "I have found." It was reputedly made by Archimedes when, after prolonged research, he suddenly recognised, while taking a bath, a hydrostatic method of detecting the amount of alloy in the golden crown of the Syracusan king, Hiero. The exclamation connotes any triumphant discovery, real or supposed.

California adopted it as its state motto, and has made it the name of one of its cities. **Eureka Springs** is the name of a city of Arkansas.

Eurythmics Translation of music into bodily movement. Rhythmic appreciation being most naturally expressed by bodily reactions, Jacques Dalcroze of Geneva invented a system of symbolic movement. The crotchet is taken as the time unit. The feet step the note values, the arms beating time. Certain standardised gestures represent modifications of regularity in the music. In their simplest form, eurythmic exercises ensure right comprehension of time values even by young pupils. Elaborated, to represent the emotions of music, they become a plastic art.

Euripides One of the three great Greek tragic poets. He was born about 480 B.C., reputedly on the day on which the Greeks defeated the army of Xerxes, King of Persia, at Salamis. The constant ridicule and envy to which he was subjected made him leave Athens and retire to the court of Archelaus, King of Macedonia, where he received great friendship and where he died in 406 B.C. He was known as "the philosopher of the stage," and had the reputation of being a woman hater. Of his eighteen extant plays the chief are *Medea*, *Hippolytus*, *Alceste*, *Iphigenia at Aulis*, and *Iphigenia in Tauris*.

Euroclydon Strong wind of the Levant. The word designates the wind from Central Cretan Mountains which caught S. Paul's ship when sailing from Fair Havens to Phenice, and occasioned his shipwreck at Malta (Acts xxvii., 14).

Europa In Greek mythology, a daughter of Agenor, King of Phoenicia. Zeus fell in love with her, and, in the form of a bull, carried her off whilst she was gathering flowers. The god crossed the sea to Crete, where he married her. She bore him Minos, Sarpdon and Rhadamanthus, who became judges of the underworld.

The **Europa** is a German liner belonging to the North German Lloyd. She has a tonnage of 46,000, and is used on the Atlantic service. In May, 1930, she crossed the Atlantic in 4 days, 17 hrs., 6 min., thus making a record.

Europa Point and **Europa Bay** are near Gibraltar.

Europe Smallest of the world's continents. On the map it looks like an outpost of Asia, but from time immemorial it has been regarded as a separate continent. It covers about 3,750,000 sq. m., and its population is about 475,000,000. It is bounded on three sides by the sea and on the other by the Ural Mountains, which separate it from Asia. The seas are the Arctic Ocean, the Atlantic Ocean and the Mediterranean Sea, which divides it from Africa. A short land boundary is formed by the Caucasus Mountains in the south. Its length from Cape St. Vincent in Spain to the Urals is about 3200 m. From Cape Matapan in Greece to the North Cape in Norway it is about 2400 m.

PHYSICAL FEATURES. The soil of Europe is on the whole fertile. There are no great deserts and the area covered by mountains is not very extensive. The chief range is the Alps, but there are many smaller ranges, chiefly in the south and west. It is well watered and most of the rivers are navigable; the Rhine and the Danube are the most important; the Volga is the greatest. Owing to its dense population and settled civilisation, man has done much in the making of roads, railways, canals and harbours to increase its productivity and prosperity. Vast supplies of food are grown and the baser metals are abundant. For cotton, oil, gold, and silver, however, Europe is mainly dependent upon outside sources.

CULTURE. Although small compared with other continents, Europe has been the seat of the world's greatest empires. It owes much, doubtless, to Asia, where the earliest civilisations flourished, but since the time of the Greeks has been, in this respect the foremost of all the continents. The Greek civilisation was followed by the Roman and later arose the wonderful civilisations of Italy, France, Britain and Germany. In trade, too, Europe has long dominated the world. The Spaniards, the Portuguese, the Venetians and the Dutch are all European races. This domination is due to many causes; a temperate climate, an accessible seaboard, natural wealth and native energy.

DIVISION INTO STATES. Much of Europe was included in the Roman Empire, on the fall of which separate states began to rise, although the idea of a central authority was carried on by the Holy Roman Empire until 1806. Between these states there were constant wars and frequently changes of boundary, but certain tendencies proved irresistible. The smaller states were gradually joined to form larger ones and so the powerful monarchies of France, Spain and Great Britain and later Italy and Germany, came into being. The changes that followed the Napoleonic wars helped to forward this movement and in the 19th century five, and later six, countries ranked as the Great Powers, not merely of Europe, but of the old world. They were Britain, France, Germany, Austria and Russia, joined later by Italy. Austria and Germany claimed to be the successors of the Holy Roman Empire; Russia was a great new empire that dwarfed all others in size and population.

The chief events in European history between Waterloo and the Great War were the rise of Germany and the decay of Turkey, whose place was taken by a group of countries known as the Balkan States. Germany's ambitions provoked, or at least hastened, the world conflict of 1914-18, and the settlement that followed this altered considerably the map of Europe. It did not, however, concern Russia,

which had just embarked upon the experiment of creating a new form of state, a Soviet republic.

To-day Europe consists of 33 separate countries. Its empires have disappeared, but 12 kingdoms remain. Only one of these bears a new name, *i.e.*, Yugoslavia, or the kingdom of the Serbs, Croats and Slovenes. Hungary is a kingdom without a king. Of the 17 republics, seven came into existence as a result of the Great War. These are Finland, Lithuania, Latvia, Estonia and Poland, all five formerly part of Russia, Austria and Czecho-Slovakia. Three others, Germany, Russia and Greece, changed from a monarchic to a republican form of government, and in 1931 Spain followed their example. The four that are neither kingdoms nor republics are the three little hereditary states of Liechtenstein, Luxembourg and Monaco and the new state of the Vatican. The Irish Free State and Iceland are sometimes ranked as separate states.

Europium Rare element. Its symbol is Eu, its atomic weight 152, its atomic number 63, and it is found associated with samarium. It was discovered in 1896 by E. A. Demarcay and first isolated in 1901.

Eurydice In Greek mythology the daughter of Nereus and Doris and the wife of Orpheus (*q.v.*). Fleeing from Aristaeus, she was bitten by a serpent and died. Orpheus brought her back from Hades by his magic power of music, but lost her again through looking back to see if she followed.

Eusebius Ecclesiastical historian. Born in Palestine about 264, he studied under Pamphilus—hence calling himself Eusebius Pamphilus—after whose martyrdom he lived in Egypt. Made bishop of Caesarea by Constantine the Great about 313, he was prominent at the council of Nicea in 325. His *Historia Ecclesiastica* and other writings made him father of church history. He died in 340.

Eustachian Tube Canal leading from the pharynx to the tympanic cavity of the ear (*q.v.*). By admitting air to the inner side of the ear drum, it maintains an air pressure equal to that existing on the outer side.

Euston Name of one of the great London railway stations. It is in Euston Square, just off the Euston Road, one of London's great thoroughfares. Before 1923 it was the headquarters of the L. & N.W. Rly. It now belongs to the L.M.S. system.

Euston is also the name of a village in Suffolk, 3 m. from Thetford. Here is Euston Hall, a seat of the Duke of Grafton, whose eldest son is called the Earl of Euston. It is on the L.N.E. Rly. and has an interesting church.

Euthanasia Comfortable death. Medical practice sometimes employs methods for rendering as painless as possible the sufferings of persons dying from incurable diseases. Induced euthanasia of the aged has sometimes been advocated by philosophers, as by Plato and More.

Eutyches Founder of the Eutychian heresy. Superior of a Constantinople monastery, he taught, contrary to Nestorius, that Christ had but one nature, the divine. This teaching, ultimately condemned by the council of Chalcedon, 451, passed into the monophysite position of the Jacobite Church, which is still extant in Armenia, Egypt and Abyssinia. Eutyches was born about 380 and died in 456.

Euxine Old name for the Black Sea. In full this was the Pontus Euxinus or the friendly sea.

Evangelical Pertaining to the Christian evangel or gospel. The term may denote the first four books of the New Testament. The principles conformable thereto, *i.e.*, evangelical doctrine, or communions governed by scripture alone, *i.e.*, Protestant, evangelical churches. In 18th century England an evangelical revival developed a Low Church movement within the Anglican Church, and occasioned John Wesley's Methodist movement.

The World Evangelical Alliance, founded in 1846, comprises individual Christians of various communions co-operating in Christian work; it organises annually united meetings for prayer in the first week of January. The Evangelicals hold a conference every summer at Keswick.

The Evangelical Union, founded by the Rev. J. Morrison of Kilmarnock, and other ministers of Arminian leanings in 1843, was a union of churches in Scotland. In 1896 these were amalgamated with the Congregationalists.

Evangelism The term is derived from two Greek words which together mean "good news" or "gospel." It may be defined as the endeavour on the part of Christians to win others to the acceptance of the Christian faith.

Evangelist Proclaimer of good news. The term was first applied to preachers appointed by the New Testament apostles. It afterwards designated both the authors of the four gospels and travelling preachers. Nowadays it usually denotes an itinerant preacher. Mormon evangelists are church officials alternatively called patriarchs.

Evans Edith Mary. English actress. Born in London, she made her first appearance as "Cressida" in *Troilus and Cressida* in 1912, and later played in Vedreimo and Radio productions and with Ellen Terry. She has played a great deal in Shakespeare and Shaw, and in revivals of Restoration comedies, at the Lyric, Hammersmith.

Evans Edward Radcliffe Garth Russell. English sailor and explorer. The son of a barrister and born in 1881, he was educated at the Merchant Taylors' School, London, and in 1897 entered the navy. In 1902-4 he was with the *Discovery* relief expedition in the Antarctic. In 1909 he went with Scott on his expedition, and, as second in command, took charge after Scott's death. During the Great War, as commander and then captain, he served with the fleet, and in 1917, in command of the *Broke* and the *Swift*, defeated six German destroyers. He received the D.S.O. and the C.B., and many honours, from learned societies, and wrote *South with Scott* and other books.

Evans Sir Arthur John. English archaeologist. Born in Hertfordshire, July 8, 1851, his father was Sir John Evans (1823-1908), who won a reputation by his studies of ancient coins and antiquities. Arthur Evans was educated at Harrow, Brasenose College, Oxford, of which he became a fellow, and Göttingen. He began his archaeological researches in Dalmatia, but after some years turned his attention to Crete (*q.v.*), with which his name is mainly associated. Between 1900 and 1908 he excavated the palace of Minos at Knossos and did other work there that was equally valuable. In 1911 he was knighted, and he has received numerous other honours,

including the F.R.S. From 1884 to 1908 he was keeper of the Ashmolean Museum, Oxford, and he was twice president of the British Association. He has written several books on his discoveries.

Evaporation Process by which a liquid passes into a state of vapour. Evaporation is increased by the application of heat and by lowering the pressure upon the liquid. If evaporation is carried out in a confined space at a given temperature a point is soon reached where the space becomes saturated with the vapour, equilibrium is established and the process ceases. Boiling commences when the pressure of the saturated vapour, which increases with the temperature, becomes equal to the atmospheric pressure.

Eve Name given by Adam to his wife, because she was "the mother of all living" (Gen. iii. 20). Her sons were Cain, Abel and Seth. The Genesis story describes her creation from a rib taken out of Adam's flesh as a "help meet for him," and her participation in the Temptation and the Fall.

Evelyn John. English diarist. Born at Wotton House, near Dorking, Surrey, Oct. 31, 1620, he was educated at Balliol College, Oxford. A man of wealth, he spent some years abroad, and in 1652 made his home at Sayes Court, Deptford. Evelyn was secretary of the Royal Society, treasurer of Greenwich Hospital, and held other public positions. He wrote on agriculture, forestry, and a number of other subjects. He died at Wotton, Feb. 27, 1706. His many friends, his wide knowledge and his acute intellect make his *Diary* one of the outstanding books of its kind and an invaluable mine of information concerning the life of his time. It was discovered in an old clothes basket at Wotton in 1817.

Evening Primrose Biennial herb (*Oenothera biennis*), of the order Onagraceae, a native of the United States. A favourite in English gardens, it has flower stems four to five feet in height, bearing spikes of large yellow flowers which only open towards sunset. The variety *Fraseri* is a perennial, and *O. missouriensis* is a creeping species suitable for the rock garden.

Everest Highest mountain in the world. It stands on the borders of Nepal and Tibet and is 29,141 ft. high. It is named after Sir George Everest (1790-1866) Surveyor-General of India. In 1922 and again in 1921 expeditions under Col. C. G. Bruce set out to reach the summit. Both failed, but on the second occasion some of the climbers ascended to over 28,000 ft.

Everglades District in the South of Florida, U.S.A. It is hot and swampy and largely overgrown with vegetation, but parts have been drained and used for growing sugar. In it are many lakes with islands. It extends for about 120 miles from north to south.

Evergreen Plant which is verdant through all seasons. Both evergreens and deciduous trees lose their leaves by the same processes of growth, but evergreens usually retain them for several years, dropping the older ones after new growths have advanced. Their leaves are often leathery, e.g., holly and laurel, or needle-like, e.g., firs.

Eversley Village of Hampshire. It is 14 m. from Basingstoke. Charles Kingsley, who was rector here, 1844 to 1875, is buried in the churchyard of the 13th-century church.

Eversley Viscount. English title borne by Charles Shaw-Lefevre. Born Feb. 22, 1794, he was a member of parliament from 1830 to 1857. From 1838 to 1857 he was Speaker of the House of Commons. He was made a viscount in 1857 and died Dec. 28, 1888, when the title became extinct.

Eversley's nephew, **George John Shaw-Lefevre**, who was born June 12, 1832, was a Liberal M.P. from 1863 to 1895. He held office under Gladstone, 1869-74 and again 1881-84. In the Liberal ministry of 1892-95 he was first Commissioner of Works and then President of the Local Government Board. In 1906 he was made a baron. In 1919 he published a volume of *Reminiscences*, and he died April 19, 1928. Baron Eversley did a great deal to preserve commons and footpaths for public use.

Everton District of Liverpool. On the north side of the city, it gives its name to a toffee originally made here.

The **Everton Football Club** is one of the leading professional clubs playing the Association game. It was founded in 1879 and was one of the original members of the Football League. The club won the Association Cup in 1906 and was champion of the League in 1891, 1915 and 1928. The ground, at Goodison Park, Liverpool, holds 60,000 people.

Everyman English morality play. Its authorship is unknown, but it dates from about 1500. Possibly a translation from the Dutch, it tells the story of Everyman's journey through the world, a journey which, by means of Death, God summons him to take.

The **Everyman Theatre** is at Hampstead, London, and was opened in 1920.

Evesham Borough and market town of Worcestershire. It stands on the Avon, 15 m. from Worcester and 106 from London on the G.W. Rly. The town is the centre of a fruit-growing district known as the Vale of Evesham. Pop. (1931) 8799.

The **Battle of Evesham** was fought here, Aug. 4, 1265, when Prince Edward, afterwards Edward I., defeated the barons under Simon de Montfort. An obelisk marks the site.

Eviction Turning a tenant out of his house or lands. Before 1914 a landlord could evict a tenant without offering any reason, providing proper notice had been given. Since the passing of the Rent Restriction Acts, the tenant of a controlled house can only be evicted by an order of the court for non-payment of rent or if the landlord requires the premises for his own use. The eviction of tenants was carried out on a large scale in Ireland during the land troubles late in the 19th century.

Evidence Testimony or information given in a court of law. By English law all evidence must be given on oath and one who gives false evidence can be prosecuted for perjury. The two main rules of evidence are that it must be the best available, primary evidence, as it is called, and that it must be relevant to the issue. In the former case it means, for example, that a copy of a document will not be accepted as evidence if the document itself is in existence. Hearsay evidence is not regarded as evidence, although there are exceptions to this rule. Since 1908 the husband or wife of an accused person can give evidence in a case. The phrase, king's evidence, is used for the testimony of a criminal who gives evidence against his fellow criminals.

Evil Eye Faculty of fascinating persons or things to their harm by looking at them. Belief in the evil eye, possession of which was involuntary, was common to the Hebrews, Greeks and Egyptians and was rife throughout Europe in the Middle Ages; it still persists among Italian and Irish peasants. Most savage races have been found to believe in it. Charms and amulets as well as certain offensive actions such as spitting, are supposed to avert it.

Evolution Process by which plants and animals have developed by gradual modification from previously existing forms of life. Evidences of such changes are afforded from anatomical and embryological data as well as from a study of fossil remains. It is only by reference to the theory of evolution that the resemblances and differences of structure in various groups of plants and animals can be satisfactorily explained. It elucidates also the appearance of features, prominent in lower forms, in the developmental stages of the higher animals, e.g., the possession of fish-like characters and later of reptilian characters in the early stages of the embryo of a mammal. Fossil remains, though necessarily incomplete, supply many indications of the evolution of complex types from simpler ones. In general the changes are progressive, but in some cases evolution is retrogressive.

Evora City of Portugal. It stands on a fertile plain, 72 m. from Lisbon. It contains a temple and other remains of a Roman colony, also examples of Moorish architecture. It is an archiepiscopal see and has a beautiful 12th century cathedral. The city walls still exist and Evora trades in wine and has textile industries. Pop. 16,118.

Évreux City of Normandy. It stands on the lion in the department of Eure, of which it is the capital. It is famous for its cathedral, which has been restored, but remains a wonderful monument of Gothic art. The city is an agricultural centre. At Old Evreux, 4 m. away, Roman remains have been found. The family of Devereux takes its name from the city. Pop. 19,000.

Ewell Village of Surrey. It is 13 m. from London, on the S. Rly. and a residential area for Londoners. Between Ewell and Cheam is Nonsuch Park. Pop. 3900.

Ewing Sir James Alfred. Scottish scientist. Born in Dundee, March 27, 1855, and educated at the University of Edinburgh, he began his lifework as assistant to Lord Kelvin. His first important post was Professor of Engineering at Tokio, 1878-83. From 1883-90 he was Professor at University College, Dundee, and from 1890 to 1903 Professor of Mechanism and Applied Mechanics at Cambridge. In 1903 he was made Director of Naval Education, and in 1916 Principal of Edinburgh University. He retired in 1929. During the Great War Ewing was a member of the explosives committee. His many honours include a knighthood (1911), an F.R.S., and the presidency of the Royal Society of Edinburgh. Ewing has done much for the improvement of electrical apparatus.

Examiner One who conducts an examination, or part of it. Examiners are usually members of the teaching staff of a university or college.

In the high court in London lawyers, called examiners, are empowered to examine witnesses.

The examiner of plays is an official in the Lord Chamberlain's department, to whom a copy of any new play or altered old play must be sent at least seven days before it is produced. He has the power to prohibit the acting of any play that is indecent.

Excalibur Magic sword of King Arthur. It was given to him by the Lady of the Lake to ensure his immunity from severe wounds and loss of blood. After his final defeat King Arthur caused Excalibur to be cast into the lake, whence a hand arose and drew it from sight.

Excavator Mechanical device for the removal of large quantities of earth or similar material. It is employed in building, mining and quarrying operations. The crane, navy or power shovel, used largely in quarrying, consists of a movable crane working a dipper at the end of an arm. Another type is a modification of a dredger, with an endless chain of buckets having cutting edges; it is used for removing surface materials.

Excess Profits Duty Tax imposed by the British Government to meet the expenses of the Great War. It was introduced in 1915, when it was 50 per cent. on all profits made in business in excess of the normal. The rate was raised to 60 per cent. in 1916 and 80 per cent. in 1917. Farmers and professional men were exempt. The tax was abolished in 1921. In 1920-21 it produced £186,000,000. A similar tax was introduced in the British Dominions and some foreign countries.

Exchange In finance, the transfer of the money of one country into that of another. The enormous volume of international trade and the amount of international loans make the question of the exchanges very important, and many firms are engaged in the business of buying and selling bills of exchange and other forms of currency. Each day the rates of exchange are given in the papers, and a merchant in London can calculate exactly what he will get for goods he sells in New York, Paris or Berlin.

After the Great War there were serious fluctuations in the various rates of exchange which made business very difficult, but gradually most of the countries stabilised their currencies, and to-day variations are usually very slight indeed. The rate of exchange is influenced by trade balances, the volume of gold in a country, and other such matters.

Exchange Name for a building in which merchants meet for the transaction of business. In England the principal one is the Royal Exchange, London, but this is no longer used for its original purposes. Exchanges are now confined to a single line of business, e.g., the stock exchanges in London and other large cities; also the wool, hop and coal exchanges in London, and the corn exchanges in many agricultural centres. Membership is usually confined to those engaged in the particular business concerned.

Exchequer Name given in England, in Norman times and later, to the department responsible for collecting the king's revenues. The name comes from chequer, a board resembling a chequer or chess board being used to help in calculating the amounts due. The name survives in the Chancellor of the Exchequer and the Exchequer and Audit Department.

The exchequer was first at Winchester, but later removed to Westminster, and there is in

existence a book the *Dialogus de Scaccario*, which describes its working in the time of Henry II. To an official meeting twice a year the sheriffs of the counties came and accounted for the money they had collected. The exchequer continued its duties, although they varied from time to time, until in 1834 its duties were handed over to the Treasury with the Chancellor of the Exchequer as its head. Scotland and Ireland had each an exchequer until this was abolished in the 19th century.

A law court, the **court of exchequer**, grew out of the exchequer. The judges of this were called barons and it lasted until 1876, when its duties, chiefly concerning revenue cases, were handed over to the King's Bench division of the High Court.

The **Exchequer and Audit Department** was set up in 1866 to audit the public accounts. It is independent of the Treasury. The offices are on Victoria Embankment, London, E.C. 4.

Exchequer bonds are bonds issued by the British Government from time to time when money is needed for temporary use. They are usually issued for three or five years. They were introduced in 1853 and replaced the **exchequer bill** by which the government had borrowed money since 1696.

Excise Word used for the duties levied on goods produced within a country, as distinct from customs duties, which are levied on goods entering a country. Under a system of Free Trade every customs duty is counterbalanced by a corresponding excise duty.

In England the earliest excise duties date from the 17th century, when they were placed on beer and other drinks. Others were added and in the 18th century they became very numerous and their collectors, the excisemen, were a detested class. In the 19th century many of them were removed and to-day they are only levied on a few articles, chiefly beer, spirits, patent medicines, table waters and matches. Licences for dogs, menservants, etc., and the entertainment tax are also classed as excise duties. In 1928-29 the total receipts from the excise duties was about £133,000,000. They are collected by the Board of Customs and Excise, but before 1909 were collected by the excise branch of the Inland Revenue Department.

Excommunication Exclusion of offending members from the rights and privileges of a religious communion. It may be temporary or permanent, partial or total. It is based upon synagogue practice, and early ecclesiastical procedure involved congregational assent, but bishops, however, gradually assumed the prerogative of excluding offenders from the sacraments for heresy, immorality or disobedience. Pope Gregory VII. first deposed a monarch by excommunicating the Emperor Henry IV. in 1077; Innocent III. placed England itself under an interdict and excommunicated King John; Luther's, Henry VIII.'s and Elizabeth's excommunications were incidents in the Protestant Reformation.

Excretion Discharge of waste matter from the body; also the substances so excreted. Excretion takes place through the skin, lungs, bowels and kidneys. Of these the most important are the two kidneys, which filter out from the blood the waste products normally resulting from metabolism. Of the 50 oz. or so of urine excreted per diem about one-twentieth is solid waste

matter. In the process of perspiration (*q.v.*) water is discharged through the sweat glands of the skin, this excretory process aiding temperature regulation. Carbon dioxide and water are exhaled from the lungs, while the bowel passes out undigested food material, bile salts and pigments, bacterial remains and cell residue. See **KIDNEY**; **SWEAT**; **URINE**.

Exe River of Devon and Somerset. It rises in Somerset on Exmoor and flows S. across Devon, entering the English Channel by a navigable estuary 6 m. long. It is 55 m. long and its chief tributaries are the Barle and other streams rising on Exmoor. It passes Exeter, and Exmouth stands at its mouth.

Execution Act of carrying out something, especially a decision of a court of law. One kind of execution is a distraint on the goods of a person who has not paid a debt after being ordered to do so by a court; it can only be carried out by officers of the court.

Another form of execution is putting a person to death after sentence has been passed. This is done in Great Britain by hanging; in France by the guillotine; and in parts of the United States by the electric chair. Until 1868 executions in England were public. Formerly persons of rank and political offenders were beheaded, the last cases being in 1746. Soldiers and sailors sentenced to death are shot.

Executor Person appointed to carry out the provisions of a will. There may be one, two or more executors. Their duties are to prove the will and, having obtained the probate, to wind up the estate of the deceased person. They should first pay the debts and then distribute the remainder of the property as stated in the will. An executor is liable for any breach of trust, but a legatee cannot sue him for his legacy until a year has passed. An executor is not entitled to any remuneration unless it is stated in the will that he is to be paid, but he can employ a solicitor to act for him and charge his expenses to the estate. When money is left in trust the same person is often appointed both executor and trustee. See **WILL**.

Exegesis Exposition or interpretation of any literary work or passage, pre-eminently of Holy Scripture. It accepts the text as it stands, the consideration of its origin and authenticity being the task of Biblical criticism. It seeks to determine the exact meaning of the words.

Exeter City and county town of Devonshire. It stands on the Exe, 171 m. from London, and is served by the G.W. and S. Rlys. The chief building is the cathedral, dedicated to St. Peter; it was restored in the 19th century and contains interesting architectural and other features including a minstrels' gallery. Near are the bishop's palace and the college of priest vicars. The Guildhall, one of the finest buildings of its kind, dates from Elizabethan times. In Rougemont Park are the ruins of Rougemont Castle, and parts of the city walls still stand. There is a University College founded in 1865 and greatly enlarged since. **Exeter School**, founded in 1629, is a large public school in modern buildings. Exeter is the agricultural and business centre for a wide district. A ship canal connects it with Topham on the estuary of the Exe. Pop. (1931) 66,039.

Exeter Marquess of English title borne by the family of Cecil. John Holland, half-brother of Richard II., was made

Duke of Exeter in 1397, but he was executed in 1400. **Thomas Beaufort** was duke from 1416 to 1425, and in 1443 **John Holland**, son of the former duke, was created duke. In a few years, however, the title was again extinct.

In 1525 **Henry Courtenay** was made Marquess of Exeter, but he lost the title when he was executed in 1538. In 1605 **Thomas Cecil**, Lord Burghley, was made Earl of Exeter, and in 1801 the 10th earl was made a marquess. The title has since been held by the Cecil. The eldest son of the marquess is called Lord Burghley and his seat is Burghley House (q.v.). **Lord Burghley** (born 1905), son of the 5th marquess, is a famous athlete, proving himself, at the Olympic Games and elsewhere, one of the greatest hurdlers of the age. In 1931 he was elected Conservative M.P. for Peterborough.

Exhaustion See **FATIGUE**.

Exhibition Kind of scholarship. It is used at the Universities of Oxford and Cambridge for grants of money which are of less value than scholarships. Most of the colleges award them and they are also awarded by other educational authorities. The Whitworth exhibitions for engineering students are notable examples.

Exhibition Term for a show or display of any kind. International and other exhibitions are now held for business purposes in the great commercial centres. Some of these are general, but others are confined to a single industry, as the exhibition of agricultural machinery. The first great international exhibition was held in Hyde Park in 1851. The British Empire Exhibitions held at Wembley in 1924 and 1925 were notable. Some cities, e.g., Barcelona, have permanent buildings for exhibitions.

Exhumation Act of taking a dead body from its burial place for purposes of examining it. In Great Britain it is illegal to disturb a grave, but an exhumation can be ordered by the Home Secretary if foul play is suspected, or for any other good reason. Bodies are also exhumed sometimes in order to be buried elsewhere, but this can only be done by consent of the authorities.

Exile Banishment from country or home. It may be self-imposed or by authoritative decree, and is distinct from the compulsory deportation of aliens, which is banishment to their native land.

Exmoor Moorland tract of Somerset and Devonshire. It lies in the north of the two counties and was once a forest. It covers about 20,000 acres of wild and beautiful scenery. Dunkery Beacon, 1700 ft., is the highest point. Simonsbath is the centre of the moor, and on its borders are Minehead and Dulverton. It is the only place in England where the red deer is wild. A good deal of it belongs to the National Trust and it is the scene of R. D. Blackmore's *Lorna Doone*.

Exmouth Seaside resort and market town of Devonshire. It is situated at the mouth of the River Exe, 10½ m. from Exeter on the S. Ry. It was once a seaport of some importance, and in the reign of Edward III. sent ships to take part in the siege of Calais. It has good sands and bathing, and beautiful scenery in the neighbourhood. Industries include fishing and lace-making. Pop. (1931) 14,581.

Exmouth Gulf is an opening, 65 m. long, on the west coast of Australia.

Exmouth Viscount English title held since 1816 by the family of Pellew. Edward Pellew was born at Dover, April 19, 1757, and entered the navy. He rose to command a ship and then a fleet. In 1816 his fleet bombarded Algiers and compelled the ruler to release 2000 slaves. In 1796 Pellew was made a baronet, in 1811 a baron and in 1816 a viscount. He died Jan. 23, 1833.

Exodus Book of. Second book of the Old Testament. Describing the release of the Hebrews from their Egyptian bondage, it continues the Genesis story and deals with the life of Israel in Egypt, the preparation of Moses, the ten plagues, the institution of the passover, and the flight across the Red Sea to Sinai (i.-xviii.). The remainder records the prolonged sojourn in the Sinai wilderness, the promulgation of the Ten Commandments, and the Book of the Covenant (xix.-xl.).

Exogamy Primitive custom requiring marriage to be effected outside the social group. Its impulse is probably economic rather than biological, although its eugenic value as a corrective to in-and-in breeding is undoubted. Where kinship groups are highly specialised, as in aboriginal Australia, the exogamy pertains to totemic families, forbidding marriages between persons of the same totemic name. Some Hindu castes recognise a special variant called hypergamy, under which women may not marry except into castes higher than their own. The prohibition of marriage outside the social group is called endogamy.

Exophagy Custom among certain cannibal peoples of eating only the flesh of persons outside their own social group. Some eat relatives who have died naturally, to acquire their qualities, but shy for food only persons of another kin. The custom usually characterises those forms of man-eating instigated by revenge, e.g., among the Maories in ancient times.

Exorcism Expulsion by ritual methods of evil spirits from persons or places. In all ages belief in intrusive demons as causing bodily or mental ailments has suggested attempts to expel them by incantations fortified by material aids. Present in Babylonia, the practice reached the Hellenistic world, was rife in New Testament times, and still lurks in Roman Catholic and other baptismal rites.

Expansion Enlargement of a body in bulk or surface. A rise in temperature causes expansion of volume in solids, liquids and gases, and the expansion of unit length, area or volume, per degree centigrade of increase in temperature, is known as the coefficient of expansion. A copper rod will increase in length by 0.0017 of its length for a rise from 0° to 100° C., and the linear expansion of steel railway lines and bridge girders, and all sensitive metal instruments must be allowed for or compensated.

Expectation Something that one thinks will happen in the future. Actuaries and insurance officials use the phrase **expectation of life** for the number of years persons may be expected to live, and on their information, derived from experience, base their rates for annuities, life insurances and the like. A rough method of calculating this, is to reckon the expectation of life at two-thirds of the difference between the present age and 80. Thus, if a man is 44, his

expectation of life is a further 24 years, or a total age of 68. 24 is two-thirds of 36, the difference between 44 and 80. To-day, however, the expectation is a little more than this, owing to the increased attention paid to public health. The expectation of life is rather different for women than for men.

Expeditionary Force N a m e given to the divisions of the regular army kept ready for active service. It was planned when the army was reorganised in 1907, and consisted of six divisions of infantry and one of cavalry, with suitable artillery. Its total strength was about 130,000 men and 480 guns. In Aug., 1914, five divisions, one being cavalry, were landed in France, just after the declaration of war on Aug. 4, and were in action at Mons on Aug. 23.

Experimental Farm Farm or station where experimental work in agriculture is carried out under scientific supervision. The result of statistical and other investigations are published. The oldest of these farms is the one at Rothamsted in Hertfordshire, under the Lawes Agricultural Trust; others are at Woburn in Bedfordshire and Pumphreton in Scotland. There are many experimental farms, under public control, in Canada.

Exploration Travelling in unknown lands in order to gain information about them. The term is usually confined to the journeys of white men in the unknown parts of continents outside Europe. The exploration of America began with the arrival there of Columbus, and continued until almost the whole of the two continents was mapped out. There are still, however, immense areas in Brazil and other parts of S. America which have been only slightly explored. In the 19th century Australia and then Africa were explored, until something was known about practically the whole of their surfaces. At different times much exploration work has been done in Asia, but in the centre of that continent are tracts still unknown. More recently exploration has concentrated on first the Arctic and then the Antarctic regions. Both poles have been reached, and much valuable knowledge has been gained.

Explosive Explosive agent. A large number and great variety of explosives are used in war and in mining, quarrying, and for similar purposes. These substances, which may be in solid or liquid form, vary much in their disruptive power. The original explosive, gunpowder, has become superseded, largely by such compounds of nitroglycerine and nitrocellulose as dynamite, gun cotton and cordite; and by ammonium nitrate, picric acid, and the nitro-derivatives of the aromatic hydrocarbons such as trinitrotoluene.

Owing to obvious dangers in the manufacture, storage and conveyance of explosives, the industry is strictly regulated by the Explosives Act, 1875, and other legal restrictions. To see that the regulations about the use of explosives are observed the Home Office has a staff of inspectors.

Exports Term used for the goods sent out of a country. In Great Britain they are valued by the authorities at the custom houses, and every month particulars about them are published by the Board of Trade. The difference between a country's exports and imports is called the balance of

trade. Invisible exports are sums paid for shipping, insurance and the like. Re-exports are goods imported in order to be sent to another part of the world.

In 1926 the British Government started a scheme of export credits. The idea was to help trade by guaranteeing credit to reputable firms. The scheme was for five years and was under the Department of Overseas Trade. Its offices are at 9 Clements Lane, Lombard St., E.C. 4. In 1930 it was decided to extend the scheme for a further four years until 1935.

In 1913 Great Britain's exports were valued at £634,800,000. In 1928 they totalled £843,780,000 but there was a decline in 1929, and this continued with only slight interruptions throughout 1930, 1931 and 1932. It was, however, partly accounted for by lower prices.

Extenuation Act of representing anything as less serious than it really is. In English law, a jury can add to a verdict of guilty a statement that there were extenuating circumstances to account for the crime in question, and the judge will usually take this into account when passing sentence.

Extradition Delivering up, by one government to another, of fugitives from justice. It is usually the subject of treaty and if there is no extradition treaty the fugitive is usually safe. Great Britain has extradition treaties with many countries, but not with some of the republics of S. America. Political offenders are usually excepted from extradition treaties.

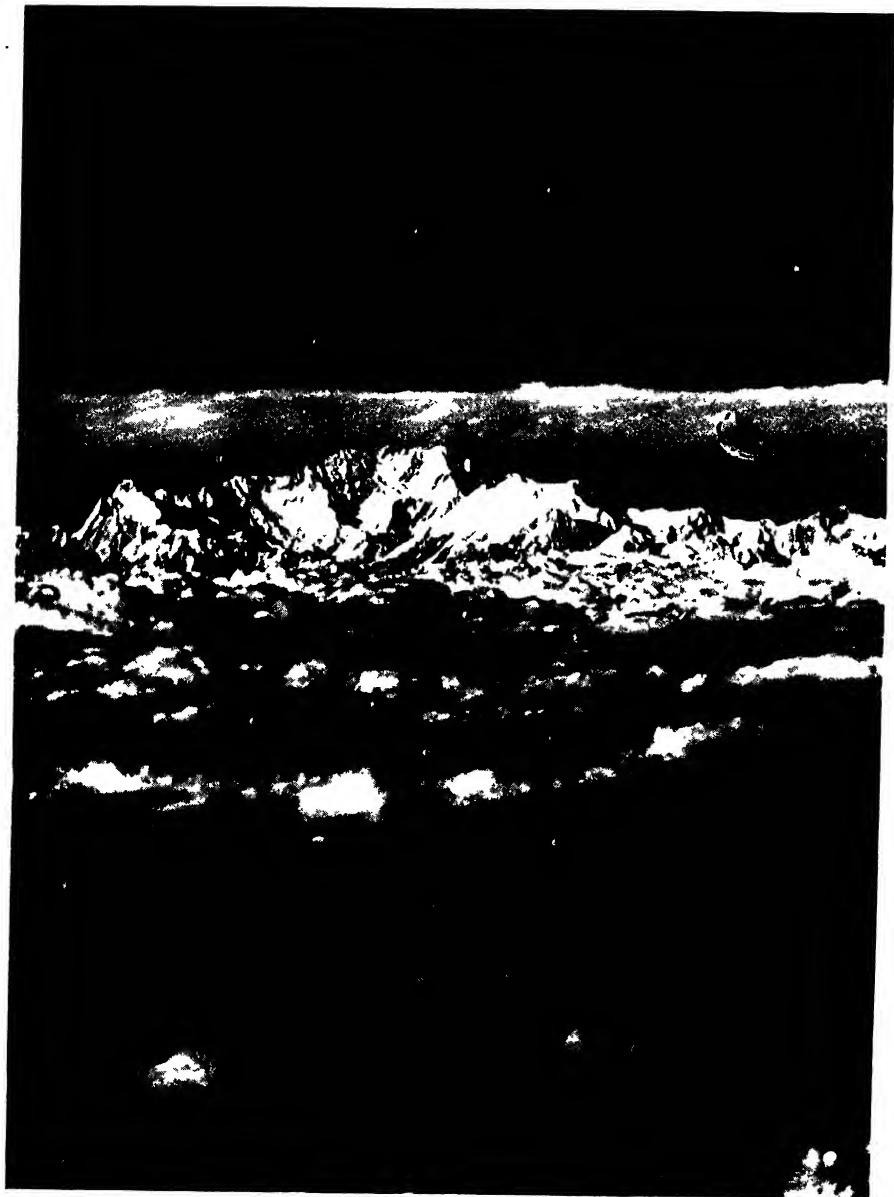
Extraterritoriality Term of international law. It denotes the immunity of certain persons, property or places, from the laws which obtain in the state in which they are. In most countries, foreign sovereigns and titular heads of states, even when incognito, are exempt from local jurisdiction. Diplomatic residences are immune, and foreign communities in some non-Christian countries. Public vessels, and the crew and passengers, are exempt when the ship is in the water of a friendly Power, but this does not apply to private vessels. In some foreign countries, as in China for instance, whole communities are regarded as extraterritorial for purposes of civil and criminal jurisdiction, being subject to national laws administered by their consuls.

Extreme Unction Sacrament of anointing for persons apparently dying. General since the 9th century, it is the fifth of the seven Roman Catholic sacraments, supplementing that of penance, and is administered by a priest after the Viatum or Holy Communion.

Exudation Discharge of a liquid from a surface, usually through pores or from incisions. Many economic plant products are exuded. Some are due to the decomposition of cellulose, like the true gums, others to the action of bacteria like the wattle gums, or to incisions in the bark, like caoutchouc and many resins.

Eyam Village of Derbyshire. It lies 5 m. from Bakewell and 12 m. S.-W. of Sheffield. The old church is dedicated to St. Helen, and the churchyard contains an old Runic cross. In Sept., 1665, the plague was carried here by means of an infected parcel from London, and over three-quarters of the population perished. Pop. 1120.

Eyck Hubert Van. Flemish painter. He was born in Holland, about 1366. About 1420 he was at Ghent engaged upon the



EXPLORING IN THE CLOUDS.—An infra-red photograph taken while approaching the summit of Kanchenjunga in the Himalayas, in the specially equipped aeroplanes of the Houston Mount Everest Flight Expedition in 1933, when for the first time man looked down on the roof of his world.

Houston Mt. Everest Flight

large altar-piece, "The Adoration of the Lamb" in St. Davon's Church, a work which was completed by his brother, Jan (1385-1440). A fine example of Jan's painting is shown in his "John Arnolfini and his Wife" in the National Gallery, London. Hubert died at Ghent, Sept. 18, 1426.

Eye Borough and market town of Suffolk. It is 94 m. from London by the L.N.E. Ry., and 10 from Ipswich, and is situated on the Dove, a tributary of the Waveney. Brewing is carried on. Pop. (1931) 1733.

Eye Organ of vision. It comprises an eyeball, about 1 in. in diameter, set on each side of the face, in a hollow orbit, the foremost protruding portion being covered by a transparent cornea, the rest of the envelope forming the opaque sclerotic. Behind the cornea is the aqueous humour and a contractile curtain, perforated by the pupil, called the iris, whose colour varies in different persons from light blue to dark brown. These confront a double-convex crystalline lens, behind which a transparent jelly called the vitreous humour is backed by the retina. This receives images from the lens which the optic nerve transmits to the brain.

A number of medical men, called **ophthalmic surgeons**, specialise in dealing with affections of the eye. In addition there are qualified opticians, who fit persons with glasses. There are several hospitals for eye troubles in London. The largest is the Moorfields Eye Hospital in the City Road.

EYE, BLACK. A severe blow on the eye, causing discolouration, should first be bathed in cold water. After a few hours, bathing with hot water will help to reduce the discolouration and swelling. If the surrounding flesh is bruised, apply vaseline. A severely blackened eye may require medical attention.

EYE, DISCHARGE FROM. A doctor should be consulted at once when any discharge is noticed from the eye. In the meantime the eye can be bathed with clean cotton wool dipped in boracic lotion (1 teaspoonful of boric acid in a tumblerful of boiling water, allowed to cool). Discharge from the eyes is also a symptom of measles.

EYE, INFLAMMATION OF. (*Conjunctivitis*.) Bathe with cold, freshly-made boracic lotion (1 small teaspoonful of boric powder to a tumblerful of boiling water, allowed to cool). Prevent the spread of infection to the sound eye by the use of a shade. If severe, consult a doctor.

EYE, SOMETHING IN. Grit, dust, or an insect may be removed with a clean handkerchief. If it is under the upper lid, lift the lid and pull it down over the lower one. If this does not dislodge it, place a match or a knitting needle on the upper lid and roll the lid back until the object can be seen.

A splinter which has penetrated the eye, or any harmful substance such as acid must have immediate medical attention, but relief may be obtained by bathing with warm water and putting a drop of olive or castor oil in the corner. In the case of quick lime, vinegar should be dropped in before the oil to neutralise the lime. An injured eye must be touched as little as possible, and in the case of children it may be necessary to protect it with a bandage.

Eyebright Annual herb (*euphrasia officinalis*), of the order Scrophulariaceae. It is a native of north temperate regions and grows throughout Britain in meadows and heathlands. It is

parasitic upon grass roots and has egg-shaped or lance-shaped leaves, and small flowers which are white or lilac in colour stained with purple, the lower lip's mid-lobe being yellow.

Eyemouth Burgh and seaport of Berwickshire. It is 8 m. from Berwick and 343 m. from London by the L.N.E. Ry., and is situated on the little River Eye. Its harbour is used by the North Sea fishing fleet. Pop. 2500.

Eyra Wild cat of S. America (*Felis eyra*). It inhabits the region between S. Brazil and N. Mexico. It is about the size of a small domestic cat, and is reddish yellow in colour, with an elongated, weasel-like body, short legs, and a long tail. It is fierce in its habits and preys on poultry.

Eyre Lake of S. Australia. It covers 4000 sq. m. and although two rivers flow into it, is dry during much of the year. Attention is being paid to the commercial possibilities of its salts, and air surveys have been made.

Eyre Edward John. English explorer. Born Aug. 5, 1815, at Hornsea, Yorkshire, the son of a clergyman, he went out to Australia in 1833. For some years he explored the unknown districts in the centre of the continent, and discovered the lake named after him. In 1845 he was made Governor of New Zealand and, after a term in St. Vincent, was appointed Governor of Jamaica in 1864. In 1865 he put down a rising of the negroes with great severity. This caused an outcry in England, and Eyre was recalled and prosecuted for having hanged a man on imperfect evidence. He was acquitted and later was pensioned and repaid his expenses. He died Nov. 30, 1901.

Eyres-Monsell Sir Bolton Meredith. English politician. Born in 1880, a son of Lieut.-Colonel Bolton Monsell, he entered the navy in 1891. In 1904 he married and took the additional name of Eyres. He left the navy in 1906 and in 1910 was elected M.P. for S. Worcestershire, now Evesham division, which he still represents. In 1914 he returned to the navy, and was mentioned in despatches. In the Coalition of 1919-22 he held a household appointment, and was Civil Lord and then Financial Secretary to the Admiralty. In 1923-24 and 1924-29 he was Parliamentary Secretary to the Treasury. Since 1923 he has been chief whip of the Conservative Party. He was made a privy councillor in 1923 and awarded the G.B.E. in 1929. In 1931 he became First Lord of the Admiralty in the National Government.

Ezekiel Book of. Prophetic book of the Old Testament. Ezekiel was a priest of Jerusalem, one of the prominent Jews exiled to Babylon by Nebuchadnezzar, 597 B.C. The book comprises the prophet's ecstatic experiences (i.-iii.), prophecies of judgment uttered before Jerusalem's fall (iv.-xxiv.), prophecies against seven foreign nations (xxv.-xxxii.), discourses of the period following the news of the city's fall (xxxiii.-xxxix.), and visions of the ideal theocracy (xl.-xlviii.).

Ezra Book of. Historical book of the Old Testament. Ezra was a Jewish scribe living in captive exile in Babylon under Artaxerxes Longimanus. Recording Cyrus's decree for rebuilding the Jerusalem Temple, the book describes the return of the first company of exiles under Zerubbabel, and the course of the rebuilding (i.-vi.), then Ezra's return with a smaller company, and the reforms he effected (vii.-x.). It was finally edited as a continuation of the two Books of the Chronicles.

FABIAN SOCIETY

English political society. It was founded in 1884 to forward Socialism by means of the steady and deliberate methods that are associated with the name of the Roman general, Fabius Maximus, of undermining the enemy's strength. Its founders believed in "the inevitability of gradualness." It has exercised an enormous influence on the progress of the Socialist movement, and has always attracted the more intellectual members of the party. Its headquarters are at 11 Dartmouth St., Westminster, London, S.W.

Fabius Maximus Quintus. Roman general. Appointed consul in 233 B.C. he received a triumph for his victory over the Ligurians, and he assisted Carthage to demand reparations after Saguntum, 218 B.C.; Hannibal's defeat of the consul Flaminius at Trasimene, 217 B.C., led to a Fabian dictatorship. By delaying tactics, whence his surname Cunctator, he avoided engagements, while his more impetuous colleagues were defeated at Cannae in 216 B.C. Consul for the fifth time, he inflicted losses on Hannibal, and recaptured Tarentum in 209 B.C. He died six years later.

Fabre Jean Henri. French naturalist. He was born in poor circumstances Dec. 21, 1823, and was self-educated to a large extent. During his early life, when a teacher in a small school, he showed his bias towards science and particularly entomology.

Later he became Professor of Philosophy at Ajaccio and at Avignon, and began his researches into insect life. His published works show remarkable powers of observation and literary ability. He died Oct. 11, 1915.

The following, which have been translated into English, are among the most important: *Story Book of Science, The Life of the Grasshopper, The Life of the Fly, The Hunting Wasps, The Mason Bees, The Life of the Spider.*

Face Front of the head. Extending from the top of the forehead to the chin and from ear to ear, it possesses 14 facial bones, 12 of which occur in pairs; the two single bones are the vomer, a bone of the nose, and the lower jaw. The temporal muscles, operating between temples and mandibles, take part in mastication; these and the muscles of expression are served by pairs of nerves, the former by the fifth, or trigeminal, and the latter by the seventh, or facial nerves.

Factor Word for an agent. Legally, a factor is one who buys and sells for another; there are corn and other factors. Usually, factors, unlike brokers, actually handle the articles which they buy and sell. Their relations with their principals are regulated by the Factors' Act of 1889. In Scotland a factor is a man who manages an estate for another.

In engineering work, including the making of aeroplanes, there is a factor of safety, as it is called. This is reached by calculating the maximum strains which the parts may have to bear and allowing for a margin over these. In mathematics a factor is one of the two

or more quantities which, multiplied together, yield a given product, and the word is also used for anything having an influence on a particular result.

Factory Building where goods are manufactured. The older ones are, for the most part, grimy and unsightly erections, but in the newer ones much attention is paid to lighting and ventilation, whilst they are frequently by no means unpleasing from the architectural point of view.

The factory system was introduced into England from Italy about 1700, but its development was due to the invention of machinery, the use of which superseded gradually the system of spinning and weaving by hand in the homes. At first, factories were subject to no law, hence employees, including women and children, had to toil for long hours and low wages under appalling conditions judged by modern standards. In the 19th century, however, factories began to be regulated by law, the first Act in Great Britain being passed in 1802. A number of others were passed in the 19th and 20th centuries. Under these laws, all factories are subject to strict inspection by Home Office officials.

Faculty Ability to do a certain thing, e.g., to talk or sing. It has also meanings of a special kind, in educational and ecclesiastical usage. The studies of a university are grouped into faculties, such as arts, law, science, etc. A kindred use is for the Scottish faculty of advocates.

In ecclesiastical law a faculty is a permission to do anything, e.g., to erect or remove a memorial in a church. In these cases the chancellor of the diocese hears the case and decides whether or not to grant a faculty. The Archbishop of Canterbury has a court of faculties, presided over by the judge of the Court of Arches. Among other matters within the jurisdiction of the archbishop, this court grants special marriage licences.

Faeroe Group of islands in the Atlantic Ocean. They are 200 m. to the north of the Shetlands and 250 m. from Iceland and belong to Denmark. There are 21 islands and they cover 513 sq. m. Eirönd and Sudero are the largest. Thorshavn on Strömo is the capital. The people are engaged in agriculture and fishing. Sheep and cattle are raised and barley and potatoes are grown. The islands, having been Norwegian, became Danish in 1380. They elect one member to each house of the Danish Parliament and have a council for local affairs. Pop. 22,835.

Fagan James Bernard. Irish dramatist and producer. Born May 10, 1873, a son of Sir John Fagan, the surgeon, he was educated at Clongowes and then at Trinity College, Oxford. He became an actor, but made his reputation in 1899 by his play, *The Rebels*. Other successes include *The Prayer of the Sword, Under Which King, Hawthorne, And So to Bed and The Greater Love*.

Fahrenheit Gabriel Daniel. German physicist. Born at Danzig, May 14, 1686, he used mercury for thermometers and devised, about 1726, the scale which is in common use in England. He died in Holland, Sept. 16, 1736.

In the Fahrenheit scale the freezing point of water is fixed at 32° and the boiling point at 212°, the intervening space being divided into 180 equal degrees. In the centigrade scale freezing point is 0° and boiling point 100°. Conversion of these scales is effected as follows:—

$$^{\circ}\text{C} = (5^{\circ}\text{F} - 32) / 9,$$

$$^{\circ}\text{F} = (5^{\circ}\text{C} \times 9 - 5) + 32.$$

Faience Generic term for various kinds of glazed pottery painted with decorative designs. It is derived from Faenza in Italy where pottery with a fine vitreous surface was made in the 15th century. Examples of Italian faience are the Gubbio and Della Robbia ware, and of French workmanship Palissy and Limoges ware, while Wedgwood ware is a modern type.

Failsworth Urban district of Lancashire. It is an outer suburb of Manchester, and is 191 m. from London by the L.M.S. Rly. Cotton manufacture is the principal occupation. Pop. (1931) 15,724.

Fainting An incipient attack of fainting can usually be prevented by sniffing smelling salts and sitting with the head between the knees for a few moments. Thirty drops of sal volatile in water is a safe and effective restorative.

If loss of consciousness actually occurs, carry the patient where he may have fresh air and quiet; lay him down with the head lower than the feet. If attacks are frequent the sufferer should certainly consult a doctor.

Fair Place where traders offer their wares for sale. In the Middle Ages buying and selling was chiefly done at fairs and amongst the hundreds of fairs held were the important ones in London (Bartholomew Fair), Winchester, Oxford and Stourbridge, near Cambridge. Some fairs have disappeared, but in many places they are still held for the sale of horses and cattle. Fairs were held, too, all over Europe and one of the most famous, the Leipzig Fair, is still held every year.

Some fairs were gradually turned into occasions for pleasure and of these a few remain, such as Gorse Fair, Nottingham, one on Blackheath and St. Giles Fair at Oxford. Here the attractions include roundabouts, coconut shies, games of all kinds for testing skill or luck and a variety of amusements. Ireland was noted for its fairs and the most notorious, Donnybrook, was suppressed because of the disorder caused by it. Another kind of fair is the one at which farm servants are hired, but these are now almost extinct.

In recent years the fair has been revived as a means of promoting trade. Every year the British Industries Fair is held in two sections, one in London and the other in Birmingham, at Castle Bromwich.

Fairbanks Douglas. American motion picture actor and producer. He was born in Denver, Colorado, May 23, 1883, and educated at the Colorado School of Mines and Harvard. He acquired stage experience in Shakespearean drama and other plays and once played a small part in London. His first screen appearance was with D. W. Griffith in *The Lamb* and he became so popular that later he had his own producing company. His speciality is athleticism and his most famous pictures are *The Mark of Zorro*, *Robin Hood* and *The Thief of Bagdad*. In 1920 he married Mary Pickford.

Fairfax Baron. Thomas Fairfax, English soldier, born at Denton, Yorkshire, Jan. 17, 1612, a son of Ferdinando Fairfax, the 2nd baron. He saw military service in the Netherlands and against the Scots and, with his father, joined the parliamentary forces at the outbreak of the civil war. The elder Fairfax was given the command of the troops in Yorkshire, but he was not very successful. The younger Fairfax, however, an able soldier, was made commander-in-chief in 1644 and was partly responsible for the victory at Naseby and for crushing the royalists in Essex in 1648. He refused to attend as one of the judges appointed to try Charles I., and in 1650 he resigned his commission in the army and received a pension of £5000 a year. Later he aided Monk in placing Charles II. on the throne. He was elected M.P. for Yorkshire in 1660 and died Nov. 12, 1671.

Fairfield Municipality of New South Wales. It is 14 m. west of Sydney, of which it is practically a suburb, and with which it is connected by railway. Pop. 7400.

Fairford Village of Gloucestershire. It is on the Coln, 25 m. from Oxford, and is the terminus of a branch line of the G.W. Rly. from that city. It is famed for its 15th century church, with its stained glass from the Netherlands, telling the story of the creation and the work of Jesus Christ. Near are Fairford Park and Hatherop Castle. There is trout fishing in the river. Pop. 1400.

Fair Head Promontory on the coast of Antrim, Ireland. Also called Benmore. It is situated between Ballycastle and Marlow Bays, stands 636 feet above the sea, and is composed of huge greenstone columns.

Fair Isle Island of Scotland. It is one of the Shetland Islands, and is 16 m. S.S.E. of Mainland, and midway between the Shetland and Orkney groups. There are two lighthouses. The inhabitants engage in sheep rearing and fishing, and in making woollen garments, including the celebrated Fair Isle jerseys. Pop. 110.

Faith Healing Cure of disease by faith in the Divine Power. The cure is elicited by prayer, without recourse to medical advice or methods. In Christendom the practice is largely based on James v. 14. Christian Science seeks to cure by instilling into the patient the belief that pain is an illusion conquerable by faith. The tradition of apostolic cures passed in the 3rd century into trust in the curative power of relics. Medical opinion attributes faith cures at Lourdes and other pilgrim resorts to a psychological action.

Fakenham Market town of Norfolk. It stands on the Wensum, 24 m. from King's Lynn, on the L.N.E. and L.M.S. Rlys. Pop. 3000.

Fakir Religious devotee. The term is used chiefly in India, where they number 1,000,000. They are partly orthodox ascetic mendicants of the dervish orders, partly irresponsible nomads and also Hindus. Some of the latter pertain to the yogi orders, who claim miraculous powers and practise severe mutilations and austerities. Others are merely degraded and filthy vagabonds.

Falaba Town of Sierra Leone, W. Africa. It is 170 m. from Freetown and is a trading centre. Pop. 6000.

Falaise Town of N. France. It stands on the River Ante, 20 m. from Caen, and is chiefly famous as the birthplace of William the Conqueror. The extensive ruins of the castle in which he was born overlook the town. Falaise is an agricultural centre and has important horse and cattle fairs. Tanning is an industry. Pop. 6900.

Falcon Sub-family of birds of prey. They have stout, hooked beaks, notched in the upper mandible, and long, sickle-shaped claws. Resident British forms include the black-crowned peregrine, 15 in. in length, which was formerly trained for hawking (*q.v.*), a popular sport in England at one time, and lays red-spotted, yellowish eggs; the kestrel, 13 in. long, which lays similarly tinted but smaller eggs; and the still smaller merlin, laying deep-red eggs. The hobby is a summer visitor; the Norway gyrfalcon and Iceland and Greenland falcons are rarer.

The **Order of the Falcon** is an Icelandic order. It was founded in 1921 after Iceland had separated from Denmark, and appointments to it are made by a committee.

Falernian Wine A sweet still wine made in the Campanian district of Italy from Roman times.

Falkenhayn Erich von. German soldier. Born Nov. 11, 1861, he entered the army in 1880 and ten years later joined the general staff. In 1900 he saw service in China and rose to be chief of the staff of the 4th army. In 1913 he was appointed Minister of War and when the World War began he held that position. In Dec., 1914, he succeeded Moltke as chief of the general staff and directed operations until he was superseded in Aug. 1916. He then took command of the army that invaded Rumania and was afterwards in charge of the Turkish Armies. He died April 8, 1922.

Falkirk Burgh and market town of Stirlingshire. It is 22 m. from Glasgow, on the L.M.S. and L.N.E. Ryds. The chief industries are coal mines and iron works, but there are other manufactures. The town is also important for its cattle fairs. Its port is Grangemouth on the Firth of Forth, 3 m. away. The burgh includes Grahamstown, Laurieston and Camelon. Pop. (1931) 36,565.

Two notable battles have been fought at Falkirk. In one, on July 22, 1298, Edward I. of England defeated the Scots under Sir William Wallace. The day was decided by the English archers. The second battle was fought Jan. 17, 1746. The Highlanders, under Prince Charles Edward, were returning from Derby, when they met a small English force, which was soon routed.

Falkland Burgh of Pifeshire. It is 21 m. from Edinburgh, on the L.N.E. Ry. Here is the palace built by James V. on the site of the castle in which earlier kings lived. After 1603 it fell into decay, but it was restored by the Marquess of Bute about 1890. Pop. (1931) 791.

Falkland Viscount. Scottish title borne by the family of Cary since 1620. The first viscount was Sir Henry Cary, a Devon man, who was Lord Deputy of Ireland under James I. The most famous holder was his son, Lucius, the 2nd viscount, who succeeded in 1633. In 1640 he entered parliament and in 1642 became Secretary of State. He fought for Charles when war began, but his dislike of the strife is shown by the words attributed to him before the Battle of Newbury,

that he would be "out of it ere night." Riding forward he met his death there, Sept. 20, 1643.

Sir J. A. R. Marriot has written *The Life and Times of Lucius Cary, Viscount Falkland*. The title is still in existence and is held by a descendant of the 1st Viscount, but he is only related collaterally to the great Lord Falkland.

Falkland Islands A group of islands in the South Atlantic, 300 m. east of the Straits of Magellan, discovered by John Davis in 1592. They were taken by the French in 1764, ceded to Spain in 1767, and finally yielded to Great Britain in 1771.

They now form a British Crown Colony under a governor assisted by executive and legislative councils.

Only two—East and West Falkland—are important, covering, with the neighbouring small islands, 4618 sq. m. South Georgia (about 1000 sq. m.), the S. Shetlands, the S. Orkneys, the Sandwich Islands and Grahams Land are dependencies extending the territory to the South Pole. Stanley, on East Falkland, is the capital and only town, and has a good harbour. Sheep farming is carried on and the islands are a centre of the whaling industry. Pop. 2200.

BATTLE OF THE FALKLAND ISLANDS. On Dec. 8, 1914, a naval battle was fought near the Falkland Islands, between the British and the Germans. After the destruction of the British Fleet at Coronel in Oct., 1914, two battle cruisers were sent to find the victorious Germans. With some old armoured cruisers they reached Port William in the Falklands and were coaling there when the German squadron was sighted. It consisted of the two armoured cruisers called *Scharnhorst* and *Neidenau* and three light cruisers. Knowing he was no match for the British battle cruisers, which he had not expected to meet in these waters, the German Admiral, Count von Spec, turned away. The British ships, under Vice-Admiral Sir D. Sturdee, put to sea and the fight began. Both the German armoured cruisers were sunk by gunfire after a battle lasting about four hours. The light cruisers, *Leipzig* and *Nuremberg*, were sunk by the British cruisers, but the *Dresden* escaped. The Germans lost 2100 men; the British, 7 killed and 12 wounded.

Fallacy Any mistaken statement used in argument. Specifically it is a piece of false reasoning, of a mistaken belief or opinion, founded on correct reasoning from untrue premises, or on incorrect reasoning from true ones. Systems of logic include the classification of fallacies under a number of headings mainly following those of Aristotle, among the more common being irrelevancy or *ignoratio elenchi*, question begging, or *petitio principii* and an unjustified conclusion, or *non sequitur*.

Fallières Clément Armand. French statesman. Born at Agen, France, Nov. 6, 1841, he became a lawyer. In 1876 he was elected to the Chamber of Deputies and in 1880 he became a minister. In 1883 he was premier and between 1880 and 1890 held offices almost continuously. In 1890 he entered the Senate and from 1899 to 1906 was its president. In 1906 he was elected president of the republic and was largely responsible for the alliance with Russia and the entente with Great Britain that came to fruition in 1914. His term of office ended in 1913. He died June 22, 1930.

Fallow Term used in agriculture for land ploughed but left unplanted

to allow the soil to recover from the exhaustion due to previous crops. With the adoption of rotation of crops and scientific fertilising, fallowing became less necessary, because the different requirements of the crops in the rotation ensure that the supplies of the various plant foods in the soil are not exhausted.

The Fallow deer is a small European species, commonly found in English deer parks.

Falmouth Borough, seaport and market town of Cornwall. It is on the G.W. Rly., 12 m. from Truro and 291 from London. The harbour is formed by the River Fal, which enters the sea here. The port has dry docks and can hold all but the largest vessels. It is also a fishing and yachting centre. The old town lies along the river, whilst on the sea front is the newer district called Gyllyn-gvase, which has good sands and is a popular resort. In the harbour are the *Cilly Sark* and the two old warships, *Implacable* and *Foudroyant*. Near the town is Pendennis Castle, built by Henry VIII., and around is much beautiful scenery. Pop. (1931) 13,492.

The title of Viscount Falmouth has been borne since 1720 by the old Cornish family of Boscawen. From 1821 to 1852 the viscounts were also earls of Falmouth. The family seat is Trogothnan, near Truro.

False Acacia Tree of the leguminous order *Robinia pseudo-acacia*, also called bastard acacia or locust tree. It is a native of North America and attains a height sometimes of 60 or 80 ft. It is widely cultivated in Britain and Europe, its long sprays of fragrant white or rose-purple flowers closely resembling those of the yellow laburnum. It is usually called acacia erroneously, as the true acacia is a mimosa.

False Pretences Phrase used in English law. It is an offence to obtain, or attempt to obtain, goods or property on false pretences, which is "a false representation by words, writing or conduct of an existing fact." To convict a person of this offence, it must be shown that he acted with intent to defraud and that he knows that the statement he made was false.

Falsetto Forced or false voice with a range above the natural. It is used chiefly of men's voices, when they cultivate high notes in order to sing alto parts, although their ordinary range is that of a baritone or a bass.

Famagusta Seaport town of Cyprus. Of Salamis, it was built in 274 B.C. by Ptolemy Augustus, and originally named Arsos. It is connected by a light railway with Nicosia, the capital. Of its mediæval glories only the fortifications, the castle and the fine Gothic cathedral, now a mosque, remain. Two acts of Shakespeare's *Othello* are laid here. Pop. 8979.

Family Unit of society consisting of father, mother and their offspring. It is used also for a larger unit, brothers, sisters, and their offspring, and we speak of the royal family and the Cavendish family meaning a group of relatives.

Many scholars have enquired into the early history of the family and although they disagree on many points they agree that it goes back to the beginnings of human society. It evolved from a society in which unions were promiscuous and paternal parentage uncertain, and became one of the bases on which our modern civilisation is built.

The family was mainly patriarchal and under the rule of the father, and in many countries it included his children by various wives and concubines. In some societies it was matrilineal, the mother being the recognised head, but this state of affairs has long passed away, except perhaps among one or two primitive peoples. In the western world, protected by the power of the Christian Church, it took the form which it now retains.

Family is used by zoologists and botanists for a group of organisms that in certain vital principles resemble each other. A family in this sense consists of several genera.

Family is also used for a group of languages, e.g. the Aryan or Indo-European family.

FAMILY ENDOWMENT. The steady fall in the birth-rate has given prominence to the principle of regulating salaries and wages to some extent by the number of a man's family. For long payments for children have been made to ministers in the Wesleyan Methodist church and the scheme has been introduced into one or two educational establishments. In New South Wales there is a state scheme of this kind. Employers pay a tax on the amount paid by them in wages, and this goes in allowances to those workers who have dependent children. This family endowment principle was introduced in 1927. There is in London a society for introducing something of the kind into Great Britain.

Famine General scarcity of food leading to starvation and frequently death. From earliest times famines have been prevalent and millions have died during their course. They are caused by the failure of the crops, which in its turn may have been due to drought, war, or pestilence. They have been most terrible in the densely populated countries of the east, where the population increases very rapidly and any serious decrease in production quickly brings about a famine.

Famines are mentioned in the Bible. During the 1st century whole provinces in India were depopulated. There was a terrible European famine in 1162 and a potato famine in Ireland in 1846-47. The 'Thirty Years' War, and to some extent, the World War, led to famines.

The severity and frequency of famines has been greatly mitigated by the greater productivity of the soil, brought about by irrigation and modern methods of farming, improved means of transport, methods of preserving food and attacks on the diseases that destroy food crops. Famines are practically unknown in the more civilised countries, but there are still, from time to time, terrible famines in parts of India, China and Russia, where the population is much closer to the means of subsistence than it is in Europe and North America.

Fan Implement for agitating the air to obtain a cooling draught on the face or person. Employed in hot countries from remote antiquity, fans composed of palm leaves or feathers mounted on long handles were royal attributes in West Asia and India. Their use in Imperial Rome survives in papal processions.

Folding fans, made of paper on bamboo framework, originated in Japan, and this form has become generally popular in Western Europe, especially in Spain. At one time painting on fans was a very popular art. In the East a form of fan known as a punkah is employed. It is composed of an oblong sheet, hung from the ceiling and oscillated by man or other power.

Fan A machine consisting of a number of blades set round an axle at an angle to their plane, capable of being rotated, on the axle, at a high rate of speed, enclosed in a case and used for moving air out of or into closed spaces. It finds practical application in cooling and ventilating, drying, the transport of light materials, such as cotton, lint, grain, etc., and for providing a supply of air under pressure.

The common electric fan is of this type, but is not enclosed, as its object is to create a current of air in a room.

FAN VAULT. The idea of the open fan was copied in Gothic architecture at a late period in its development. The stone ribs used in vaulting are carved to open out like a fan. There is a beautiful example of this fan tracery in Henry VII's chapel, Westminster Abbey.

Fang Term applied to the poison teeth of certain snakes, particularly the viper and rattlesnake. The poison fangs are usually larger than the ordinary teeth and are grooved or traversed by a duct from the poison gland. When a snake strikes its prey, the venom is pressed out of the gland into the duct by muscular contraction and thence conducted into the wound made by the fang.

Fannich District and loch of Scotland. The district is in the County of Ross and Cromarty and consists of a group of mountains and a deer forest. Near these is Loch Fannich, a lake about 6½ m. long. A short stream, called Fannich Water, carries off its waters.

Fanning Island of the Pacific Ocean. Of coral formation, it covers 15 sq. m. and is a British possession, being attached to the Gilbert and Ellice Islands Colony. It is a station for the cable between Canada and Australia. It owes its name to an American soldier, Edmund Fanning (1737-1818) who discovered it in 1798.

Fantasia Musical composition free from formal restrictions and often descriptive. Originally a fantasia was a composition for instruments variously combined, but without voices. As composed by Byrd and his contemporaries the fantasia was the immediate precursor of the sonata. Bach, Mozart and Beethoven carried on the tradition.

Fao Village of Iraq. It stands on the Persian Gulf. It was seized by the British in Nov., 1914, and, when fortified, was used as a base for the operations in Mesopotamia.

Farad Electrical unit of capacity. It represents that capacity which one coulomb of electricity will charge to the pressure of one volt. As the farad is too large for practical purposes, the micro-farad, equal to one-millionth of a farad, is generally used.

Faraday Michael. English chemist and physicist. He was born in London, Sept. 22, 1791, of humble parentage. He was apprenticed to a bookbinder, but found time to study science and in 1813 became assistant to Sir Humphry Davy. In 1827 he succeeded Davy as Professor of Chemistry at the Royal Institution and became one of the greatest scientists of his time. His lectures at the Royal Institution were very popular and he wrote a great deal. He belonged to the Glassites and was a devout Christian. He died Aug. 25, 1867.

Faraday's researches in electrolysis laid the foundations of electro-chemistry, and were

followed by many important discoveries in electro-dynamics (including the laws which are the basis of modern electrical power), and in various departments of pure and applied chemistry, particularly in the liquefaction of gases, the manufacture of glass, the metallic alloys and the vaporisation of mercury.

The Faraday Society was founded in his honour in 1903, and in 1931 the centenary of some of his greatest discoveries was celebrated.

Farcy Ulcerative disease affecting horses. It is notifiable in England and Wales. It is of a contagious nature and can be contracted by human beings as well as other animals.

Fareham Seaport, urban district and market town of Hampshire. It stands on an opening of Portsmouth Harbour, 8 m. from Portsmouth, and is a junction on the S. Rly. There is a shipping trade and the industries include brewing. In the Middle Ages and later Fareham was a flourishing port, but, as only small ships could approach it, its trade declined. Pop. (1931) 11,575.

Farewell Cape of Greenland, the country's most southerly point. Situated on an island, it is perilous to sailors on account of currents and drift-ice.

Farina Term applied to a number of starchy substances, such as potato starch in this country, maize starch in the U.S.A. and cassava starch in S. America. Starch is the commonest storage material of the ordinary plant hence many seeds, stems and roots are farinaceous.

Faringdon Market town of Berkshire, sometimes called Great Faringdon. It is 17 m. from Oxford, on the G.W. Rly. Faringdon is an agricultural and hunting centre. Pop. 3070.

The title of Baron Faringdon has been held since 1916 by the family of Henderson. Alexander Henderson, the 1st baron, was born in London, Sept. 28, 1850, and became a stockbroker. For a time he was chairman of the G.C. Rly. From 1898-1906, and again 1913-16, he was a Unionist M.P. In 1902 he was made a baronet and in 1916 a baron. His seat is Buscot Park, near Faringdon.

Farm Piece of land with house and the necessary buildings used for agricultural purposes. It is usually owned by one person and rented and worked by another, the farmer, and this is the original meaning of the word, but to-day many men own the farms which they work.

There are several classes of farms, as much depends upon the soil. A large expanse of poor land will serve as a sheep farm, but a dairy farm requires much better soil. Other farms may be chiefly devoted to the cultivation of wheat, oats, and potatoes, whilst other farms may embrace all these. In England and Wales, in 1928, there were 400,895 farms and in Scotland 75,866. In Ireland, where they are much smaller in size, there were 572,574. (See DRY FARMING).

A settlement where men are put to work on the land is called a farm colony. These were started by the Salvation Army and after the Great War several were founded for ex-service-men.

FARMING AS A CAREER. See AGRICULTURE.

Farman Name of a type of aeroplane built by the brothers Henry and Maurice Farman. They were the sons of an English journalist. Henry, born in

France in 1871, became a champion racing cyclist and later a racing motorist. Then he started works for the manufacture of cars and bicycles. Turning to aeronautics, he designed and built an aeroplane which made its first trial in 1907. A year later he started a school for aviation near Versailles. His brother, Maurice, opened an aeroplane factory, and in 1912 they combined to erect works at Billancourt. During the Great War they supplied aeroplanes to the French and other armies.

Farmer John. English musician. He was born Aug. 6, 1836, at Nottingham, studied music abroad and became Music Master at Harrow in 1864. In 1885 he was appointed organist at Balliol College, Oxford. He died July 17, 1901.

Farmer composed the music for many school songs, his most famous being *Forty Years On*, and he also edited music for public school use.

Farnborough Urban district of Hampshire. It is 33 m. from London, on the S. Rly. On Farnborough Common is the aircraft factory of the Royal Air Force. The Empress Eugénie lived on Farnborough Hill, where she built a Roman Catholic Church, containing a mausoleum in which lie the remains of herself, her husband, Napoleon III., and her son. The Benedictines have an abbey here. The town has a military camp, being in the Aldershot area. Pop. (1931) 16,359.

Another Farnborough is a village in Kent. It is 1 m. from Bromley and is a centre for motor bus services.

Farnborough Baron. English historian. Thomas Erskine May was born Feb. 8, 1815, and educated at Bedford. In 1831 he secured a position in the library of the House of Commons and in 1838 became a barrister. He passed his life in the service of parliament, and, having been clerk assistant since 1856, he was chosen clerk of the House of Commons in 1871, a position he held until just before his death, May 17, 1886. In 1886 he was made a peer, but the title became extinct. Erskine May, by writing a book on the *Privileges, Proceedings, and Usages of Parliament*, made himself the chief authority on this subject. Almost equally valuable is the *Constitutional History of England, 1760-1860*.

Farne Group of islands off the coast of Northumberland. The largest, Inner Farne, is about 14 m. from the mainland, the other 20 or so being more to seaward. They are mainly uninhabited islets. On Longstone, associated with Grace Darling, is a lighthouse.

Farnese Famous Italian family. In 1193 Pope Alexander VI. created Alexander Farnese a cardinal. He belonged to a family who were lords of Farneto in Tuscany and his sister was the mistress of the pope. In 1534 Alexander became pope as Paul III. He had a family and to one of his sons he gave the Duchy of Parma, which remained in the possession of his descendants until the family became extinct in 1731. One duke of Parma, Alexander, was the Spanish soldier who led the army that was intended to invade England in 1588. Elizabeth Farnese became the wife of Philip V., King of Spain.

Paul III. was responsible for the **Farnese Palace**, one of the finest buildings in Rome. It was completed by Michelangelo and is in the Renaissance style. In 1871 it was bought by France to serve as an embassy. The Farnese Bull, one of its treasures, is now in Naples.

Farnham Market town and urban district of Surrey. It stands on the Wey, 38 m. from London, on the S. Rly. The industries include brewing, and hops are grown in the neighbourhood. Near the town are Waverley Abbey and Moor Park. Pop. (1931) 18,294.

Farnham Castle was long the residence of the Bishops of Winchester. A fine building, mainly of the 17th century, it stands on a noble park, part of which now belongs to the town. The castle is used for church purposes, as the bishop ceased to live there in 1926.

Farnol John Jeffery. English author. He was born Feb. 10, 1878, and educated privately. In 1902 he went to America, where he contributed stories to magazines and for two years painted scenery for the Astor Theatre in New York. His first novel, *Lady Caprice*, published in America, appeared afterwards in England as *The Chronicles of the Imp*. Returning to England in 1910, the publication of *The Broad Highways* made him immediately popular with the readers of romantic adventure. This was followed by others, notably, *The Amateur Gentleman*, *The Honourable Mr. Tarnish*, which was dramatised, *Bellane the Smith*, *Black Bartlemy's Treasure*, *Martin Conish's Vengeance*, *Peregrine's Progress*, *Sir John Dering*, *Another Day*, *Over the Hills and The Jade of Destiny*. He also published a volume, *War Impressions*, in 1918.

Farnworth Market town and urban district of Lancashire. It is 3 m. from Bolton on the L.M.S. Rly. The main industries are cotton spinning, engineering and coal mining. Pop. (1931) 28,711.

Faro Card game. Reputedly of Italian origin, it was in vogue under Louis XIV. in France, whence it reached the American Colonies. A picture of Pharaoh formerly appearing on one of the cards occasioned its name. It nowadays requires expensive apparatus, comprising a layout and a faro-box, with springs releasing the cards in pairs, giving 25 turns, the top card, *scot*, and the lowest, in *hoc*, not counting. Bets are made that any specific card will win or lose.

Farrar Frederic William. English divine and author. Born in Bombay, Aug. 7, 1831, he was educated at King William's College, Isle of Man, King's College, London, and Trinity College, Cambridge. He became a schoolmaster and was ordained, serving at Marlborough and for 15 years at Harrow. In 1871 he was chosen head of Marlborough and from 1876 to 1895 he was canon of Westminster and rector of St. Margaret's. He was dean of Canterbury from 1895 until his death, March 22, 1903.

Farrar wrote a great deal and his religious views, liberal for his day, had a considerable influence. His *Life of Christ* (1874) was immensely popular and his *Life of St. Paul* had a great sale. His books for boys, especially *Eric, or Little by Little*, were also great popular successes, although their sentiment makes no appeal to a later generation.

Farren Elizabeth. English actress. Born about 1759, the daughter of a surgeon at Cork who took to the stage and left his family in poverty, Elizabeth made her first stage appearance in 1773. Four years later she played in London, at the Haymarket theatre, appearing as Miss Hardcastle in *The Stoops to Conquer*. From 1788 until her retirement in 1797, she played at Drury Lane, where

she was a great success as the impersonator of the fine ladies in the works of Sheridan and Congreve. She married the 12th Earl of Derby in 1797 and she died April 23, 1829.

Farrier Man whose business it is to shoe horses. It was also used for the man who attends to their ailments, but he is now known as a veterinary surgeon. The Farriers' Company is one of the London livery companies. Its offices are at 140, Leadenhall St., London, E.C. 4., and it takes a special interest in veterinary matters.

Farthing Smallest British coin. Equaling one fourth of a penny, it is legal tender up to four at a time. It was coined in silver from the time of Edward I. to that of Mary I., and in copper under James I. and later. Under Charles II. tin farthings inset with a circle of copper were struck. Copper half-farthings were circulated between 1842-69 and in 1860 they became bronze, $\frac{1}{8}$ oz. in weight.

Farthingale Hooped petticoat or hooped framework of whalebone worn beneath the petticoat to extend it. Of Spanish origin, the fashion appeared in England during the reign of Queen Elizabeth. It developed gradually into a circular contraption of immense proportions, with a stiff surface radiating from the waist. The crinoline of a later period was a modified form.

Fascism Political and social movement in Italy. It began about 1919 amongst those who were dissatisfied with the conduct of affairs at a time when the country was suffering from the effects of the Great War. They called themselves fascists from the Latin word *fascis*, bundles. Mainly composed of men who had served in the War, they organised themselves on military lines and the movement grew rapidly. Fascism was at first republican and socialistic in its aims and its members wore the black shirt as their distinctive garb. Benito Mussolini soon stood out as the guiding spirit of the movement.

In 1920 Fascist candidates stood for the Chamber of Deputies and local councils. Some were elected, but the activities of the organisation were more articulate in other directions. Abandoning gradually their early creed, they stood out as the opponents of communism, then strong in Italy, and in several towns there were riots. In 1921, 38 Fascists were elected to the Chamber and at a congress a national programme was adopted.

In Oct. 1922, there took place the march on Rome, a great event in the history of Fascism. The city was entered by 200,000 armed fascists, the government was overthrown and a new one under Mussolini set up. Otherwise civil war would have broken out. Since then Fascism has been supreme in Italy and Mussolini far more a dictator than a premier.

Fascism has consolidated its power by altering its constitution more than once. In 1924 and again in 1928, by changing the electoral law, Mussolini secured a majority in the Chamber and this he has since retained. Only those are eligible for election to the Chamber who are on a roll prepared by the Grand Council of the Fascists, and there is a similar grip upon the minor governing bodies. In much the same way industry is controlled by Fascist organisation. Although antagonistic to all ideas of constitutional government, Fascism has undoubtedly done a great deal to make Italy prosperous.

There is a society of British Fascists at

99 Buckingham Palace Road, London, S.W. 1 and the movement has adherents in other countries.

Fashoda Town of the Anglo-Egyptian Sudan, formerly known as Fashoda Kodok. It stands on the White Nile, 468 m. to the south of Khartoum and is a caravan, trading and official centre. In Sept., 1898, it was occupied by a small French force under Marchand, although within the British sphere of influence. Marchand was asked to withdraw, but refused and the position was for a short time serious. However, in Nov. the French Government ordered him to abandon the post and signed an agreement, March 21, 1899, which provided a definite boundary line between the British and French spheres.

Fast Ruined castle of Berwickshire. It is situated on a promontory of the cliffs near St. Abb's head, and was once a fortress, accessible only by a drawbridge over a chasm which separated it from the mainland. Garrisoned by English troops in 1410, it was retaken by one of the Duncans. At the time of the Gowrie conspiracy it was intended to imprison James VI. of Scotland in the fortress, which was at that time in the possession of Logan of Restalrig, one of the conspirators. In Scott's *Bride of Lammermoor* it figures as Wolf's Crug, the residence of the Master of Ravenswood.

Fasting Abstention from food. It may be either total or partial. The Mosaic law imposed an annual fast on the day of atonement and the Jews still observe this and other days as fasts. The Anglican Church prescribes days of fasting or abstinence during the 40 days of Lent, Ember days, Rogation days, all Fridays except Christmas day, and the vigils of various festivals, leaving to the individual conscience the manner of observing them. The Roman Catholic Church makes fasting compulsory. Its most usual form is to eat no meat on Fridays, but in religious houses, especially during Lent, it takes more severe forms: Roman Catholics and high churchmen in the Anglican Church believe that the Holy Communion must only be taken fasting.

Fastnet Rocky islet off the coast of Co. Cork, Irish Free State, the site of a lighthouse.

Fat Oily substance of animal or plant origin which is solid or semi-solid at ordinary temperatures, becoming an oily liquid with increase of temperature. In animals fat acts as a reserve from which the body can maintain heat. In plants it is stored in many seeds and fruit. Most fats are valuable either as food or for industrial purposes.

Fatalism Doctrine that all things are preordained by an inexorable necessity. First taught by Epicurus and the Stoics in Greece, it appears in Christian theology in association with views concerning predestination and election. Mohammedanism calls for man's calm acceptance of the decrees of Kismet, an absolute power transcending all physical law.

Fata Morgana Kind of mirage. Specifically it is that seen across calm water in the Messina Strait which separates Sicily and Italy. Inverted images as of ships appear in the sky above actual objects. Norman settlers associated it with the mediaeval fairy Morgana, who, according to mediaeval romances, was King Arthur's sister.

Fates In classical mythology, three goddesses who presided over human



MUSSOLINI.—A striking picture of Italy's dynamic dictator in a characteristic attitude while addressing a Fascist meeting. The strength of the personality which has dominated European post-war politics is evident in both face and gesture.

[Topical

destiny. The Greeks knew them as the Moirai, daughters of Zeus and Themis, or of Erebus and Night; the Roman name was Parcae. Clotho, the youngest, held the distaff and span the thread of life; Lachesis determined its quality and length; Atropos, with the shears, severed it at the inevitable moment. Even Zeus was unwilling to interfere with their fateful decrees.

Father A male parent. In English law a father is responsible for the maintenance of his offspring until they can maintain themselves. By analogy the word is used for God, especially as the first person of the Trinity, and Christianity teaches the doctrine of the fatherhood of God, that He is the lover and protector of His children, to whom He has revealed Himself in Jesus Christ.

Father is used for priests and members of monastic orders in the Roman Catholic and to some extent in the Anglican Church. It is also used for the senators of Rome, for any venerable person, and for the first or oldest person in a community, as the father of the chapel in the printing industry and the father of the House of Commons.

The Fathers of the Church are the writers who lived in the early ages of Christianity, and whose writings are regarded as only of less importance than those in the Bible. They include St. Jerome and St. Ambrose.

Fathom Linear measure used only for nautical purposes, especially sounding. Originally the distance a man could stretch with his arms spread, it is now 6 ft.

Fatigue Condition resulting from prolonged muscular or mental activity. As this condition affects the nervous system, fatigue is characterised by inability to work, pay attention or think, and by a failing memory. The study of industrial fatigue, which results in diminished capacity for work due to excessive labour, monotony and other factors, has become one of great importance. A good deal of research work has been done on this subject by the Home Office and the Institute of Industrial Psychology.

Fatigue in metal, responsible in many instances for fracture of parts of machines, is the result of local deformation of the metal when subjected to prolonged vibratory stress.

The word is also used for military duties, especially those connected with routine work of a camp or barracks.

Fatima Daughter of Mahomet. The child of his first wife, Kadjah, she was born about 606 and was called by the prophet one of the world's four perfect women. She married Ali, and bore three sons, Al-Hasan, Al-Husein and Al-Husain. From the first two sons the Fatimite caliphs were descended. She died in 632.

Fatimites (or Fatimides). Arabian dynasty, claiming direct descent from Fatima, daughter of the prophet Mahomet, and her husband. The dynasty, founded by Obaidallah in 909, ruled in Egypt for nearly 200 years. At first their claim was unquestioned, but as they became more powerful, the Caliphs of Bagdad were at great pains to discredit it. The last caliph of the dynasty died in 1171.

Fault Geological term for the fracture of strata due to earth movements. Resulting in the formation of fissures, faults may be small or may extend to a considerable depth and for a great distance. The plane of fracture is termed the fault plane, and the side

upon which the beds are depressed, the downthrow side. In a normal fault the beds are displaced downwards, in a reversed fault they are shifted upwards.

Faun In Roman mythology, a rural deity, patron of flocks, herds and agriculture. He is sometimes identified with Pan, whose attributes he shares. Ancient fancy peopled the woods with fauns or demi-gods resembling men except that they were goat-footed and tailed and had sprouting horns.

Fauna Term used collectively for all the animal life of a given geographical region or geological period. In a similar way flora designates the plant life. The preservation of the fauna of an area is now beginning to interest responsible authorities such as the Society for the Preservation of the Fauna of the British Empire.

Faure François Félix. French statesman. Born in Paris, Jan. 30, 1841, he became a merchant and shipowner at Havre. As a volunteer officer he fought throughout the Franco-Prussian War. In 1881 he became a member of the National Assembly, and in 1882 Under-Secretary for the Colonies. On the resignation of Casimir-Périer in 1895, Faure was elected President. The chief events during his administration were the Franco-Russian Alliance, the Fashoda affair, and, in 1898, the re-trial of Dreyfus. He died Feb. 16, 1899.

Faust Historical figure in 16th-century Germany, famous in legend and poetry. Dr. Johann Faust, a profligate necromancer and charlatan, passed into legends which attributed to him a pact with the devil. A collection of tales about him issued in 1587 became widely known; Marlowe's tragedy of Dr. Faustus was published in 1604. Goethe developed the theme of man's eternal struggle with temptation in his great drama called *Faust*, which was begun in 1773 and completed in 1832. Gounod's opera on the subject appeared in 1859; and on Goethe's version W. G. Wills based the tragedy produced by Sir H. Irving in 1885.

Faustina Name of two Roman empresses. Both were charged by contemporary historians with gross profligacy. The elder (c. 104-141) married Antoninus Pius; a temple in Rome to her memory, and a colossal bust in the Vatican, still remain. Her daughter, like her mother named Anna Galeria, married Marcus Aurelius. Both emperors founded institutions, called Faustianum, for educating orphan girls, in memory of their wives.

Faversham Borough, river port and market town of Kent. It is 9 m. from Canterbury and 52 from London, on the S. Ry. Faversham Creek is an opening of the Swale and on it there is a little shipping. There is also an agricultural trade and brewing is carried on. Here are oyster beds. A very old place, Faversham had an abbey, and in the 12th century or later was one of the Cinque Ports. Pop. (1931) 10,091.

Favre Jules Claude Gabriel. French statesman. Born at Lyons, Mar. 21, 1809, he studied law in Paris and became a keen republican. After the Revolution of 1848 he was elected deputy for Lyons, and bitterly and violently opposed the election of Louis Napoleon to the presidency. From 1863-70 he led the republican opposition. In 1870 Favre was Foreign Minister and Vice-President. After his mismanagement of the armistice, June 28, 1871, and later of the

Treaty of Frankfurt, Favre resigned. Elected to the senate in 1876, he died Jan. 20, 1880.

Fawcett **Henry**. British politician and economist. Born at Salisbury, Aug. 25, 1833, he was educated at London and Cambridge, and in 1858 was totally deprived of his sight through a shooting accident. Nevertheless, he became Professor of Political Economy at Cambridge in 1863; he was elected Liberal M.P. for Brighton in 1865, and in 1875 for Hackney. In 1880 he became Postmaster General under Gladstone. He died Nov. 6, 1884. His wife, **Millicent Garrett Fawcett**, was a leading advocate of women's suffrage and a writer on political and educational subjects. She died Aug. 5, 1929.

Fawkes **Guy**. English conspirator. Born at York, April 16, 1570, he enlisted as a soldier of fortune in the Spanish army in Flanders, returning to England in 1604 at the suggestion of Thomas Winter, one of the conspirators in the Gunpowder Plot. To Fawkes was left the actual execution of the plot, and he was arrested at his post Nov. 4, 1605, when the plot was discovered. This was the day before the one fixed for the meeting of Parliament. He confessed under severe torture, and with other conspirators was hanged, Jan. 31, 1606. See **GUNPOWDER PLOT**.

Fayolle **Marie Émile**. French soldier. Born at Le Puy, May 14, 1852, he entered the French army as lieutenant of artillery in 1875. In Aug. 1914, he commanded the 70th division of infantry, and from 1915-19 his commands included the 33rd army corps, the French 6th and 1st armies on the Somme, and the army of the centre on the Aisne. He was commander of the French forces in Italy in 1917. In 1919 he commanded the French army of occupation in Germany, and in 1920 he was French military representative at the League of Nations. He became a marshal of France in 1921, and died Aug. 27, 1928.

Feather Outgrowth from the skin constituting the protective covering of birds. A tubular quill fixed in the skin develops into a squarish, tapering, pith-filled shaft, supporting a vane of lath-shaped barbs which, except in flightless birds, are interlocked. Shaftless down feathers with discontinuous barbs, forming in many birds thick undercoats, are acquired in the egg or shortly after hatching.

Featherstone Urban district of Yorkshire (W.R.). It is a coal mining town, 176 m. from London and 2 from Pontefract, on the L.N.E. Rly. Pop. (1931) 14,952.

Featherweight Term used in sport. In racing, a featherweight is the least weight that may be carried by a horse when running. In boxing, featherweights form a class between the light-weights and the bantam-weights. In Great Britain the rules are that a featherweight must be below 126 lb. in weight.

Febrifuge Old term for a substance which allays fever. It is also applied to such external remedial agents as cold baths and wet packs, the more modern term being antipyretic. Quinine is the most popular of febrifuges, but many others have been introduced such as phenacetin, antipyrin, salicylate of soda, etc.

Fécamp Town and seaport of Normandy. It stands where the river of the same name falls into the English Channel, and is 28 m. from Havre. There is a harbour and

the industries are chiefly shipping and fishing. Benedictine is made here. In the Middle Ages, Fécamp had a nunnery which later became a famous Benedictine abbey. Pop. 17,200.

Federalism System of government in which states are united for certain purposes, but for others are independent, each managing its own affairs. The United States, Germany, Brazil and Switzerland are federal states, as, in the British Empire, are Canada and Australia.

The division of power between the federal government and the separate states is laid down in the constitution and varies between one and another. Some matters, foreign relations, defence and tariffs, for instance, are almost always given to the federal government; education is usually left to the states. In some constitutions, the states retain all rights not expressly handed over to the federal government; in others the states have only the powers specified as belonging to them.

The government of a federal state is usually by a legislature of two houses and a cabinet of ministers. One house represents the people and the other, the upper house, represents the states. In the United States, each state sends two members to the Senate; in other countries the number depends on the population. In addition each state has its own legislature. The federal government often sets aside for its own capital a piece of land which is outside all the states. Washington and Canberra are examples of this federal territory. The Federated Malay States are a group of states in the British Empire united in a kind of federation. See **MALAY STATES**.

Federal Reserve System

Banking system of the U.S.A. designed as a means of bank control, it was instituted in 1914, when it was considered necessary to take control out of the hands of the Government. There is a board of seven directors, and under them a chain of twelve local banks. All national banks must subscribe for, and between them hold, all the stock. These banks, which have wide powers of authority, issue currency and paper money at their discretion.

Feilding **Robert**. English rake, known as Beau Feilding. Born about 1651, he squandered a fortune and became notorious for his amours at the court of Charles II. He commanded a regiment for James II, and at the Revolution followed him to Ireland, being a member of the Irish Parliament in 1689. Seven years later he was permitted to return to England. Swift and Steele satirised him, and his portrait was painted by Lely. He died May 12, 1712.

Feisal King of Iraq. Born in Arabia in 1885, he was a son of Hussein, who became King of the Hejaz, but was a vassal of the Sultan. He was educated in Constantinople and was one of the group that deprived Abdul Hamid II. of his throne in 1909. Returning to Arabia, he was occupied in fighting and in 1916 he was in arms against the Turks. In 1918 he helped the British to conquer Palestine and Syria, and he attended the Peace Conference in Paris in 1919. In March, 1920, he was proclaimed King of Syria, but abdicated in July. In August, 1921, he was elected and proclaimed King of Iraq.

Felix Name of five popes. Felix I. was Pope, A.D. 269-274, and Felix II. from 356-58. Felix III. reigned from 483-92 and Felix IV. from 526-30. Felix V. was Duke

of Savoy from 1416 to 1434, and in 1439, although still a layman, was chosen Pope in opposition to Eugenius IV. He was never recognised in Rome and was the last of the anti-Popes. He died Jan. 7, 1451.

Felix was also the name of a monk who came to England in the 7th century and was made Bishop of Dunwich. **Felxtowe** is named after him. The word means happy or fortunate.

Felix Roman official in Judaea. He is known only because S. Paul preached before him at Jerusalem (Acts xxii.-xxiv.). He was then procurator of Judaea under the Emperor Claudius. In A.D. 62 he was recalled to Rome because he was accused of having oppressed the Jews.

Felxtowe Watling place and urban district of Suffolk. It is on the estuary of the Orwell, 16 m. from Ipswich and 81 from London, on the L.N.E. Rly. Steamers also go along the river to Ipswich.

There is a fine promenade and the sands and bathing are good. A station is established for flying boats. Pop. (1931) 12,037.

Fellah Egyptian word for a peasant, or labourer on the land. About 62 per cent. of the native population belong to this class. They are chiefly Mohammedans and live in villages under chiefs. The word is also used for similar classes in Palestine and Syria. The plural is *fellahin* or *fellahcen*.

Felling Urban district of Durham. It is a mile from Gateshead, on the L.N.E. Rly. The chief industries are coal mining and engineering, largely shipbuilding. Pop. (1931) 27,041.

Fellmonger Dealer in fells, or skins. *Fellmongering* includes the process of removing the wool from sheepskins, which is done by various means, including "sweating," soaking in a solution of lime, and by chemical treatment of the hides.

Fellow Word for a male person. It meant originally a companion or equal. In a special sense it is used for a member of the governing body of a college at Oxford and Cambridge. Such consists of a head, fellows and scholars. The fellows are elected, sometimes after examination, and usually from the most brilliant members of the university. Members of the governing bodies of certain schools, e.g., Eton and Winchester, are called fellows, and colleges at London, Durham and elsewhere have fellows. The members of learned societies are called fellows, examples being: F.R.S., Fellow of the Royal Society, and F.B.A., Fellow of the British Academy.

Felo de Se One who commits murder upon himself; a suicide. The act may be unintentional, as when, in attempting maliciously to kill another, a man runs upon his antagonist's weapon, or is killed by the discharge of his own. A *felo de se* was formerly buried on the highway with a stake through his body. In 1823 this was replaced by night burial in the usual burial place without Christian rites; in 1882 night burial was abolished, and a religious service permitted.

Felony Class of crime in English law. All crimes are either felonies or misdemeanours, the more serious ones falling into the former category. Felony includes such crimes as murder, manslaughter and burglary. Until 1870 the goods of a felon, i.e., one convicted of felony, were forfeited to the Crown.

Felsite Hard, close-grained rock representing an ancient devitrified lava.

It contains scattered porphyritic crystals of quartz and felspar.

Felspar Group of minerals met with in most eruptive rocks. They consist of silicates of aluminium with varying proportions of lime, soda or potash, hence the names of potash felspar, soda felspar, etc. They vary in colour and form but have approximately the same hardness and specific gravity and similar crystalline shape.

Felsted Village of Essex, also called Felstead. It is 3 m. from Great Dunmow and 42 from London, on the L.N.E. Rly. Here is Felsted School, founded by Lord Rich in 1564. Now a large public school, it has modern buildings holding about 300 boys, and extensive grounds. Pop. 2100.

Felt Fabric made by beating or pressing together the moist fibres of wool and certain kinds of hair. Wool owes its property of felting to the interlocking of the scales on the fibre when subjected to rubbing or beating. Usually waste wool and mixtures of various fibres are used for this purpose. Felt is employed for making carpets, hats, gun wads and pianoforte hammers. Cow hair is used in making roofing felt. The *Feltmakers' Company* is one of the London living companies.

Feltham Urban district of Middlesex. It is 15 m. from London, on the S. Rly. There are many market gardens in this neighbourhood, and here the London County Council has an industrial school. Pop. (1931) 16,316.

Felucca Name given to a small vessel used in the Mediterranean. It has one or two masts, a lateen sail, and often a rudder at each end.

Feminism (Lat. *femina*, a woman). Term used for the movement that aims at putting woman on an equality, politically, legally and economically, with men. It began in the 19th century, and soon after the Great War its advocates had achieved most of their aims. In Great Britain women were given educational advantages, hitherto confined to men; they secured the vote and with it equal rights of citizenship. The learned professions were opened to them, save only the ministry of the Church of England and some other churches. A woman can sit in Parliament and in the Cabinet, and can hold most public offices. In other countries the amount of freedom given to women varies, but in practically all feminism has made enormous strides since about 1900.

The aims of the feminists to-day are to break down the few remaining barriers to their entrance into public life and to secure economic equality with men, not only in the civil service, but throughout professional and industrial life. To secure this involves the abandonment of a principle, hitherto regarded as fundamental, that the wages of a man are not individual, but family wages.

Fen Flat, low-lying land, at times wholly covered with water. Certain marshy districts in Lincolnshire and other E. counties are known as the **Fen District**.

Fencible Word used in the 18th century for a regiment raised for home defence only. They consisted of both horse and foot soldiers, and were disbanded when the need for their services was over.

Fencing Pastime for which the two combatants use a light weapon called a foil, sabre or épée. In the 15th and 16th centuries a knowledge of swordsmanship was

part of the education of a gentleman, who might at any time be called upon to take part in a duel. In the 16th century light swords began to be used for this purpose, and in this way fencing originated, being practised with blunt or protected weapons, as a preparation for the real combat, in which the bare weapon was used. In England fencing died out when pistols became the regular duelling weapons, but it lived on in France and Italy, where duels continued to be fought with light swords.

As a pastime fencing was taken up in England in the 19th century and prospered greatly from about 1900. The teachers came principally from France, where there were many famous schools of arms, and instruction was given in the use of the weapon. To avoid injury the fencers are masked and wear a guard over the head, whilst the weapon is fitted with a button on the point. Clubs were formed and fencing was taken up at the universities. A little later women began to fence, and the Olympic games recognised fencing with foil, épée and sabre as events. International matches are held to which Great Britain has sent teams since 1903, as well as being represented at the Olympic games. There are championships confined to English fencers, one being for women, who invariably use the foil.

The London Fencing Club at 7 Cleveland Row, London, S.W. 1., is the chief fencing centre. Other noted centres are the Épée Club and the Salle Bertrand. Competitions are held regularly. One form of combat is a pool in which six or eight fencers take part. Each fights the five or seven others, victory going to the one who makes the most hits.

Fender In domestic use, a low metal guard placed round the hearth to prevent hot cinders or ashes from falling into the room.

A ship's fender is a bundle of rope or wood suspended over the side of a vessel to protect the hull from damage at the wharfs. A large ball of rope used for this purpose is called a pudding fender. The name is also given to a contrivance on railway engines and trams to prevent loss of life in the event of an accidental collision with pedestrians.

Fénelon François de. French ecclesiastic. Born in Perigord, Aug. 6, 1651, he was ordained priest, and in 1689 was appointed tutor to the Duke of Burgundy, a grandson of Louis XIV. In 1695 he became Archbishop of Cambrai. His interest in Quietism and the writings of Mme. Guyon brought him into conflict with Bossuet, and resulted in his condemnation by the papal court in 1699. He was the author of several instructional and educative works. These include *The Adventures of Telemachus* and some *Fables* written for his royal pupil, *Dialogues of the Dead*, and a *Treatise on the Education of Girls*. He died Jan. 7, 1715.

Feng Yu-Hsiang Chinese general, known as the "Christian general." Born at Chaohsien, Nganhuai province, in 1880, he was trained for the army, and adopted Baptist Christianity. He first saw active service in Tibet in 1909, and since has had a distinguished career, holding important military and civil posts. A stern disciplinarian, he has earned high praise for the excellence of his civil administration and the thorough training of his troops.

Fenian Name given to a member of a revolutionary association that flourished in Ireland in the 19th century. It

comes from Finn, the name of a mythical warrior whose followers were called Fianna. The movement was started about 1848 and found strong support among the Irish in the United States, but for some years little was heard of its activities. In 1867 some Fenians tried to seize the castle at Chester and to blow up the prison at Clerkenwell, and during the next 20 years there were constant outrages, both in England and Ireland, due undoubtedly to the Fenians. Some were taken and executed, but many more escaped.

Fenn George Manville. English author. He was born at Westminster, Jan. 3, 1831, and after unsuccessful attempts as teacher, printer and newspaper proprietor, became a popular contributor on various publications, including *All the Year Round* and *Chambers's Journal*. In 1867 he published his first book for boys, which he followed with many others and also novels. In 1870 he was appointed editor of *Cassell's Magazine*, and in 1873 became proprietor of *Once a Week*. He died Aug. 26, 1909.

Fennec Small, large-eared African fox (*ulpes zerda*). It is found in all the coastlands of N. Africa from Egypt to Senegambia and inland to Nubia and Kordofan. A slender-bodied, bushy-tailed animal, creamy white in colour and with blue eyes, it dwells in burrows and hunts only at night.

Fennel Name of various perennial umbelliferous herbs. It is particularly applied to the aromatic *foeniculum vulgare*, a native of Britain. Varieties are cultivated in Europe, America and India for their seeds, which yield fennel water, a carminative and stimulant used chiefly in veterinary practice.

Fenny Stratford Urban district of Buckinghamshire. An agricultural centre, it is 48 m. from London, by the L.M.S. Rly., and is situated on the Ouzel. Pop. (1931) 5200.

Fenton District of Stoke-on-Trent. Until 1910, when it was absorbed in Stoke, it was a separate urban district. It is on the L.M.S. Rly., and makes chinaware and pottery.

Fenton Lavinia. English actress. Born in 1708, she made her first stage appearance in 1726 at the new Haymarket Theatre. Rapidly she attained great popularity. In Jan., 1728, she created the character of Polly in Gay's *Beggar's Opera*. Nevertheless, she left the stage in June of that year, becoming the mistress of the 3rd Duke of Bolton, whom she married on the death of his wife in 1751. She died at Greenwich, Jan. 24, 1760.

Ferdinand Name of three emperors of the Holy Roman Empire. **Ferdinand I.** was the younger brother of the Emperor Charles V. He was born March 10, 1503, and was educated in Spain. In 1521 he married Anna, daughter and heiress of the King of Hungary and Bohemia, a marriage that brought these two countries under the rule of the house of Austria. He was king there from 1526 until his death, but his time was mainly occupied in fighting his enemies. In 1558 he succeeded Charles as Emperor, and died in Vienna, July 25, 1564. His successor was Maximilian II., from whom the existing Hapsburgs are descended.

Ferdinand II., a grandson of Ferdinand I., was born July 9, 1578. He was a nephew of the Emperor Maximilian II., and a cousin of the Emperors Rudolph and Matthias. A strong Roman Catholic, he was selected to succeed

FERDINAND

483

FERNEY

Matthias, and he became King of Hungary and Bohemia, and in 1619 Emperor. He had a good deal to do with the outbreak of the Thirty Years' War, and it was still raging when he died, Feb. 15, 1637.

His successor was his son, Ferdinand III. Born July 13, 1608, he saw the end of the war in 1648, and died April 2, 1657. The next Emperor was his son, Leopold I.

Ferdinand King of Bulgaria. Born in Vienna, Feb. 26, 1861, he was the youngest son of Augustus, Prince of Saxe-Coburg-Gotha, and Clementine, daughter of Louis Philippe. While serving in the Austrian army, he accepted the offer of the vacant throne of Bulgaria. On Aug. 14, 1887, he took the title of prince, but was not recognised by Russia until 1896. In 1908 he proclaimed the independence of Bulgaria and assumed the title of Tsar. In 1915 he entered the Great War on the side of Germany, and in Oct., 1918, abdicated in favour of his son, Boris.

Ferdinand King of Rumania. Born at Sigmaringen, Aug. 24, 1865, he was the son of Prince Leopold of Hohenzollern-Sigmaringen and a nephew of Charles, first King of Rumania. Ferdinand was declared heir presumptive in Mar., 1889, and on June 10, 1893, married Marie, daughter of the Duke of Edinburgh and grand-daughter of Queen Victoria. He came to the throne in 1914, and in 1916 entered the Great War and led his army against the invading Austro-Germans. He died at Sinaia, July 20, 1927, and was succeeded by his grandson, Michael, a child, who, three years later, was deposed in favour of his father, Carol II.

Ferdinand Name of several kings of Spain. The early ones were kings of the kingdom into which that country was divided. One of these, Ferdinand V., became King of Aragon in 1479. Previously he had married Isabella, who became Queen of Castile in 1474. Under their rule Spain became a single kingdom with an immense empire overseas, as the Moors were crushed and the New World discovered. He died Feb. 23, 1516, and his lands passed to his grandson, later the Emperor Charles V.

Two other Ferdinands, members of the Bourbon family, were Kings of Naples and Sicily. Ferdinand I. was king from 1759 until his death, Jan. 4, 1825. Ferdinand II. was king from 1830 until he died, May 22, 1859. He was the infamous ruler who was known as Bomba, and both Ferdinands were noted for their oppressive rule.

Ferdinand VII. King of Spain. He was born Oct. 14, 1784, the son of Charles IV. Upon the death of his first wife, in 1806, he approached Napoleon, in opposition to his father's wishes, to ask for the hand of his niece, Charles, thereupon, had him imprisoned, but two years later was forced to abdicate in his favour. He himself, however, was almost immediately made to abdicate by Napoleon and was imprisoned in France. Reinstated in 1814, he proved so vicious and despotic a king that Spain was in a constant state of unrest, and in 1823 the aid of the French army was needed to keep him on the throne. He abolished the Salic law in order that his daughter Isabella might succeed him, and died Sept. 29, 1833.

Fergusson Sir Charles. British soldier. Born in Edinburgh, Jan. 17, 1865, he became the 7th baronet in 1907. Educated at Eton and Sandhurst, he joined

the Grenadier Guards in 1883. In 1895 he joined the Egyptian army and saw service in the campaigns of 1896-99. A brigadier-general in 1907, in the Great War he commanded the 5th division at Mons, and subsequently the 2nd and 17th army corps. Military governor of the occupied German territory, 1918-19, he was Governor-General of New Zealand, 1924-30.

Fermanagh County of Northern Ireland. Wholly inland, its chief natural feature is Lough Erne. Agriculture and fishing are the chief industries. Enniskillen is the county town. Other places are Newtown Butler, Lisnaskea and Rosslea. The G.N. (Ireland) Rly. serves the county. Its area, not including the water surface, is 655 sq. m. Pop. (1931) 57,984.

Fermentation Series of changes due to the action of certain complex nitrogenous bodies upon organic compounds. These nitrogenous bodies, known as ferments or enzymes, are secreted in living organisms. The commonest is the one in the yeast cell, which produces alcohol and carbon dioxide from sugar, but bacteria, moulds and animal secretions also set up fermentation of various kinds. Diastase in germinating seeds changes starch into sugar, and enzymes are the cause of the fermentation of lactic and acetic acids.

Fermoy Market town and urban district of Co. Cork, Irish Free State. It is on the Blackwater, 15 m. from Mallow and 23 from Cork, on the G.S. Rly. The industries include agriculture and some fishing. Races are held here. In 1920 there was serious rioting in Fermoy. Pop. 7000.

Fern Order of flowerless plants. Mostly perennial herbs with fibrous roots or creeping root stocks, a few, e.g., tree ferns, have woody trunks. They reproduce by means of microscopic spores in capsules on the back or margin of the fronds; these develop a green, leaf-like scale or prothallium, beneath which male and female elements, stimulating floral anthers and ovaries, produce sexually another spore-bearing plant. The 2500 species of ferns are cosmopolitan, preferring humid temperate and tropical regions; one-fourth of them grow in India, and nearly 50 are British.

Fernandez Juan. Spanish navigator. Born in Cartagena, he attained distinction as a navigator by observing the course of the trade winds and the currents off the west coast of South America. During one of his voyages, he discovered, in the S. Pacific, the islands now bearing his name, one of which became famous as the residence of Alexander Selkirk. He obtained a concession of them in 1572 and attempted unsuccessfully to found there a colony of Indians.

Fernando Po Island of Africa. In the Bight of Biafra, it belongs to Spain and covers about 800 sq. m. Santa Isabel is the capital. The island is mountainous, but much of the soil is very fertile. The chief export is cocoa, and coffee, rice, bananas, sugar cane, tobacco, cotton and yams are also grown. A Portuguese island from 1471, it was ceded to Spain in 1778. Pop. 20,800.

Ferndale Market town of Glamorgan-shire. Near Pontypridd, it is in a coal mining district, and is 167 m. from London, by the G.W. Rly. Pop. 18,144.

Ferney Village of France, 4 m. from Geneva, being just over the

French frontier. It is famous for its associations with Voltaire and is now called Ferney-Voltaire. The château which he built, and where he lived from 1758 to 1778, contains memorials of his life there. Pop. 1200.

Ferns Town of Wexford, Irish Free State. It is 71 m. from Dublin, on the G.S. Rly. Ferns was once an important place, being the residence of the kings of Leinster and the seat of a bishop, whilst for 200 years it sent two members to the Irish Parliament.

Ferrara City of Italy. It is situated about 30 m. from Bologna near the River Po, in the north of the country, the capital of the province of the same name. The castle still stands and there are remains of the city walls. There is a university dating from 1261, which has a valuable library. The great age of Ferrara was the 15th and 16th centuries, when it was the chief residence of the family of Este and produced some noted painters. It is now a trading centre. Pop. 117,220.

Ferrel William. American meteorologist. He was born at Fulton, New York, in 1827. At first a teacher, he later joined the Coast Survey, and in 1882 became Professor of Meteorology at Washington. He died in 1891.

Ferrel's Law states that if a body moves in any direction on the earth's surface except east or west, it is deflected, owing to the earth's rotation, to the right in the northern hemisphere and to the left in the southern hemisphere.

Ferret Half-domesticated variety (*putorius*) of the polecat. Originating in N. Africa or Spain, and used in Italy for rabbit hunting, it has been known in England, where it is employed for hunting rabbits and rats, for six centuries at least. Commonly pale coloured, and not infrequently a pink-eyed albino, it interbreeds readily with the wild polecat.

Ferric Salts Group of iron compounds. They are derived from ferric oxide or sesquioxide of iron, which occurs in nature as haematite iron ore and is used in powder form as a pigment and polishing material (jeweller's rouge). The most important of the ferric salts is ferric chloride, used in medicine as a tonic.

Ferricyanides Salts formed by the action of ferricyanic acid upon metals. The most important is ferricyanide of potassium, commonly known as red prussiate of potash. This salt occurs as ruby red crystals and, when combined with ferrous salts such as ferrous sulphate, forms a blue precipitate used as a pigment known as Turnbull's blue.

Ferro-concrete See CONCRETE.

Ferrocyanides Salts formed by the action of ferrocyanic acid upon metals. Ferrocyanide of potassium, also known as yellow prussiate of potash, is made on a large scale by fusing together animal refuse with potassium carbonate and iron. It occurs as lemon yellow crystals, and, in combination with ferric salts such as ferric sulphate, forms a deep blue pigment, Prussian blue, which is used in calico printing, paper staining, and as a paint.

Ferrol Seaport of Spain. It is on a bay on the north-west coast, and has one of the best harbours in Spain. It is a naval station, is well fortified, and has dockyards and other accommodation for warships, as well as for commercial shipping. In 1805 the port was taken by the British. Pop. 30,000.

Ferrous Salts Compounds of iron derived from ferrous oxide or protoxide of iron. Ferrous chloride is used in medicine, and ferrous sulphate, or green vitriol, is employed in making ink and in tanning and dyeing. Other salts used in medicine are ferrous iodide and ferrous phosphate.

Ferry Passage over a river, across which a boat carries passengers and sometimes goods. The earliest ferry boats were wooden ones propelled by a single ferryman, and there are still a number of these on the English and Scottish rivers. Some of the ferries are private property and are protected by charter or custom. On the busier rivers, such as the Thames, Mersey, Clyde and Forth, large steamboats which can carry motor cars and other vehicles, as well as passengers, are employed. Some of these are free, but usually fares are charged. A further development is the train ferry, in which a train is taken on to the steamer and conveyed across the water. Several are established in Sweden and Denmark, while one operates between Harwich and Zeebrugge, Belgium.

Ferry Jules François Camille. French statesman. Born at St. Dié, Vosges, April 5, 1832, he studied law. In 1869 he was elected republican deputy for Paris and as prefect of the Seine was responsible for the government of Paris during the siege of 1870. He became Minister of Education, then of Foreign Affairs and was twice Premier, 1880-81 and 1883-85, being largely responsible for the expansion of the colonial empire of France. He was murdered by a lunatic, Mar. 17, 1893.

Ferryhill Town of Durham. It is 6 m. from Durham and 215 m. from London, by the L.N.E. Rly. There are collieries and iron is worked. Pop. 10,133.

Fertilisation In biology the union of two dissimilar sexual cells or gametes to form a new individual. Reproduction is thus secured by most animals and plants. The male gamete or spermatozoid is usually smaller than the female cell or ovum. The ovum is generally rounded and its protoplasm is provided with numerous fatty or albuminous yolk granules.

Fertiliser Agricultural term for plant food added to the soil other than in the form of farmyard manure, such as guano from Peru, potash salts from Germany and nitrate of soda from Chile. It is also used in connection with the artificial manures, the manufacture of which is an important industry in many countries. Deposits of calcium phosphate occur in many places and the material is rendered soluble by suitable treatment, forming the well-known superphosphate of lime. Sulphate of ammonia was added to the list of fertilisers as the by-product from gas works. More recently the huge supplies of nitrogen in the atmosphere have been drawn upon for the manufacture synthetically of nitrogenous fertilisers. The farmer is now provided with a complete range of material for supplementing the natural supplies of plant food in the soil and for meeting the exact requirements of the crop.

Fesse In heraldry a horizontal band across the shield. It is one of the nine ordinaries. When charged, it occupies one-third of the field; when uncharged it is narrower. The middle of the shield is the fesse point. Charges lying in horizontal rows are "in fesse"; those divided by horizontal lines are "per fesse."

Festival Day or days publicly reserved for religious observances. The ritual may be solemn or joyous, feasting being a frequent but not necessary incident, and ordinary work is usually suspended. The Jewish festivals of the Passover, Pentecost and Tabernacles passed into the Easter, Whitsuntide and Christmas festivals of Christendom, and have been augmented by many others commemorating saints and martyrs. Islam has the Ramadan Balram terminating the Ramadan fast, and the Qurban Balram 2 months later: India and China have also their festivals.

Festubert Village of France. It is 3 m. from La Bassée, and here there was much fighting during the Great War. On Nov. 23, 1914, the Germans stormed some trenches held by the British, but later in the day the lost ground was regained. On May 15, 1915, a British attack was delivered at Festubert, and some ground won by the 2nd and 7th divisions. Fighting continued for some days after, and in this the Canadians took part.

Festus Porcius Roman official. He is known for his association with S. Paul. About A.D. 58 he was made procurator of Judaea: S. Paul was brought before him and was sent by him to Rome for trial. The facts are found in Acts xxiv.-xxv., and are also related by Josephus.

Fetishism Form of magico-religious belief, common among the negroes of Africa. It holds that the services of a spirit may be appropriated by possessing its material embodiment. A fetish may be an animal plant or stone, and may house a disembodied soul. It is a guardian spirit rather than a superior being, and devotion to it is not idolatry: hence the fetish may be rebuked and even beaten. The American Indians cherish objects sheltering impersonal powers, called by analogy fetishes.

Fettes College Public school of Scotland. It is in Inverleith Park, Edinburgh, and was founded by Sir William Fettes (1750-1836), Lord Provost of that city. It was opened in 1870, and has extensive buildings with accommodation for about 250 boys.

Feuchtwanger Lion. German author. Born in Munich, July 7, 1884, he soon began to write plays and became a successful dramatist. He became known in Britain in 1926 when his novel, *Jew Suss*, was translated into English. In 1927 came another, *The Ugly Duchess*, and in 1928 a volume of plays, including one on Warren Hastings.

Feudalism Social and economic system that existed in much of western Europe from the 11th to the 16th centuries. The word comes from the Latin *feudum*, a piece of land, and the central principle of the system was the holding of land in return for services. The king was regarded as the holder of all the land, but much of this he let out to barons, who were his tenants-in-chief and who, in return for the land, agreed to perform certain services, usually to provide him with a certain number of soldiers in time of war.

These tenants-in-chief, in their turn, let out land to others on like conditions, and so the process was continued down the scale. When a tenant died it was usual for his successor to pay a fine to his overlord before he could succeed to the estate. In France and elsewhere, although not to the same extent in England,

feudalism was a danger to the king, as his vassals could collect large numbers of armed men to make war on him. In England the minor or mesne tenants, as well as the tenants-in-chief, owed allegiance to the king. The tenants were called vassals, and in theory it was the lord's duty to protect them.

A variety of causes led to the decay of feudalism, which broke down in England in the 14th century, or perhaps earlier. Trade increased, towns sprang into existence, methods of warfare changed, and as money became more plentiful, it became more convenient to pay cash than to render services, to receive cash than to demand them.

Nevertheless, something of the system continued to exist, and it was not until the time of Charles II. that the feudal incidents, as they were called, were abolished. There were payments made to the king or overlord on succeeding to an estate and on other recognised occasions, such as the knighting of his eldest son and the marriage of his eldest daughter. In France relics of feudalism persisted until they were utterly swept away by the Revolution.

Fever Condition of the body, generally characterised by high temperature. Normal temperature ranges between 98.4° and 98.8° F., and is governed by the skin's heat-regulating mechanism. Interference with this may have such causes as sunstroke, but usually results from the toxic action of micro-organisms which occasion specific fevers, e.g., typhoid and diphtheria. Fevers commonly begin with a shivering fit: the hot stage reaches a crisis, often accompanied by discharge of perspiration or otherwise, after which the symptoms subside. A temperature of 106° F. means hyperpyrexia or excessive fever: should it exceed 107.8° F. for any period death usually supervenes. Intermittent fevers exhibit symptoms with periodic rise and fall.

In Great Britain cases of certain specific fever must be notified to the medical officer of health for the district, and patients are usually moved to a hospital for infectious diseases, many of which are found throughout the country.

Feverfew Wild perennial plant (*Chrysanthemum parthenium*) allied to the chamomile. It has branched stems, broad, deeply-toothed leaves, and clustered flower heads of small, white, daisy-like flowers. The plant has an aromatic odour and bitter tonic properties. It was formerly esteemed by herbalists as a febrifuge, hence its name.

Fez *The Tarboosh*. Round brimless cap of cloth or felt, usually red with a tassel of black. The caps were originally made at Fez, in Morocco, hence the name. In common use in Egypt and N. Africa generally and in Turkey, where, however, their use was made illegal after the foundation of the republic.

Fez City of Morocco, one of the country's capitals. It is about 100 m. from the coast at Rabat, the two places being linked by railway. The city, which is surrounded by walls and gates, has a Mohammedan university which possesses a fine library. Pop. 81,200.

Ffestiniog Urban district and town of Merionethshire. It is 16 m. from Dolgelly and 226 from London, and is served by the G.W. Rly. It is famous for its slate quarries, the slate being taken by a narrow gauge railway to Portmadoc. The town stands amidst magnificent scenery, which attracts visitors. A noted beauty spot is the Llynfael Falls. Pop. (1931) 9072.

Blaenau Ffestiniog is 3 m. away.

Fiacre Saint of Irish descent. He founded a monastery and guest-house at Brouil, near Paris, dying there about 670. His remains were transferred to Meaux cathedral; he is commemorated on Aug. 30. French hackney coaches, established in Paris in 1640, were named *fiacres* because their first stand was at the Hôtel de S. Fiacre, Paris.

Fiat Legal term meaning "it must be done," issued by judges and other high officials of the law courts in certain circumstances, and differing from an order proper, in not being drawn up in formal style. For instance, legal action can only be taken in certain cases after the attorney-general has given his consent, or issued his fiat.

Fibre Thread-like filament of mineral, plant or animal derivation. Plant fibres are of diverse origin and composition: the hairs of cotton and the fibres of flax and ramie represent nearly pure cellulose; in jute, esparto and sisal, lignin is present, and in raffia and hemp, cutin is a constituent. Plant fibres may take the form of hairs, bast fibres, wood fibres, the cuticle of leaves or the whole stem itself. The hair or fur of animals supplies wool, mohair and other textile fibres, the silk-worm provides silk, and the mineral asbestos forms an incombustible fibre.

Fibula Brooch or buckle, especially one dating from the early metal ages. Neolithic bone pins were later reproduced in bronze; by looping one end and bending the other until the point reached the loop, safety pins arose. The Hallstatt period developed bold decorative forms, succeeded by a series of La Tène designs, which are invaluable for dating antiquities of the iron age.

The slender bone on the outside of the leg is called the fibula. It is bound by ligaments to the tibia or inner bone, its lowered end forming a bony knob outside the ankle.

Fichte Johann Gottlieb, German philosopher. Born May, 19, 1762, he was educated at Jena, Leipzig and Wittenberg, and later taught and wrote for a living. He came under the influence of Kant and submitted to him *A Critique of Revelation*, which was highly approved by the great philosopher. In 1791 he became Professor of Philosophy at Jena, and there wrote many philosophical books. He had to resign in 1793, and retired to Berlin. He died Jan. 27, 1814.

Fiction Word used for imaginative prose literature. The fiction of to-day takes the form of novels, but the romances of an earlier day are equally fiction.

A legal fiction is defined by Blackstone as an idea put forward "to prevent a mischief, or remedy an inconvenience that might result from the general rule of law." Legal fictions were invented by the lawyer to overcome difficulties in the way of obtaining justice. "The king never dies," is an example.

Fief Name given to a landed estate in feudal times. It was land which was held on condition that the holder rendered certain services, usually in time of war, to his overlord. The word *foc* comes from it, as does the Scottish *feu*.

Fieldfare Large species of thrush (*turdus pilaris*). Breeding in northern Europe in pine and birch forests, multitudes spend autumn and winter in Britain, where they nest in colonies, and feed on grubs, slugs and berries. The male, 10 ins. in length,

has a reddish-yellow throat and a black-spotted breast. The song note is low and twittering, the call note loud and harsh.

Fielding Henry, English novelist. Born in Somerset, April 22, 1707, he was educated at Eton and then went to Leiden. After his return to England, he wrote plays and studied law for some years until in 1749 he was appointed a magistrate for Westminster, where he sat fairly regularly until his death at Lisbon, Oct. 8, 1754.

One of England's greatest novelists, Fielding is known as the author of *Joseph Andrews*, *Tom Jones* and *Amelia*. *Tom Jones* deals with episodes in the author's own life, and is regarded as one of the greatest works of fiction ever written, full of humour, although coarse according to modern ideas. He also wrote *Jonathan Wild*. Thackeray in his *English Humorists* pays homage to Fielding's genius.

Fielding William Stevens, Canadian statesman. Born at Halifax, Nova Scotia, Nov. 24, 1848, in 1861 he became a reporter on the Halifax *Morning Chronicle*, and later, managing editor of that paper. In 1882 he was elected to the legislature of Nova Scotia, and from 1884-96 was Prime Minister. In 1896 he entered the Dominion House of Commons and from then until 1911 was Minister of Finance under Sir Wilfrid Laurier. He occupied the same position from 1921 to 1925 when the Liberal party was again in power, and died, June 23, 1929.

Field Marshal Highest rank in the British army. It dates from 1736. There must not be more than eight field-marshal, apart from those of honorary rank, such as the king of the Belgians. A Field-marshal carries a baton as a sign of his rank, and wears on his uniform the representation of two crossed batons. The equivalent rank in the navy is admiral of the fleet, and in the air force marshal of the air. The term marshal is used in the French and other European armies.

Field Mouse Popular name of several rodents which are not house mice. They include the long-tailed, *mus sylvaticus*, and various species of voles, especially the short-tailed and the red field mouse or bank-vole, all very destructive to British field and forest produce.

Fiery Cross Ancient summons to arms in Highland Scotland. Two crossed sticks of light wood were charred at the ends and dipped in goat's blood. Sent by clan chieftains from place to place by swift messengers, it rendered any clansman, who did not answer the call, liable to the death penalty. It lingered until the rebellion of 1745.

Fiesole City of Italy. It stands on the Arno, 3 m. from Florence, and is visited for its beautiful surroundings. Fiesole was a flourishing city of Etruria before the foundation of Rome. Straw plaiting is now its chief industry. Pop. 10,500.

Fife Small transverse flute intermediate between the flute and piccolo. The modern fife, used in drum and fife bands, has six finger holes and four, five or six keys. The B flat fife supplies the melodic substance of the music and is accompanied by piccolos and flutes in F or E flat.

Fife County of Scotland. It is a peninsula between the Firths of Forth and Tay, covers 504 sq. m., and is partly hilly. Cupar is the county town; other places are Dunfer-

line, Kirkcaldy, St. Andrews and Buckhaven. The county has some rich coal mines and there is a good deal of fishing. It is served by the L.N.E. Rly. The Eden and Leven are the principal rivers. Historically, the kingdom of Fife, as it is called, is one of the richest parts of Scotland. St. Andrews and Dunfermline especially are full of memories of the past, and there are many small burghs. Kinghorn, for example, that have historic and interesting associations with the old Scottish kings. Pop. (1931) 290,000.

Fife Duke of. British title held by fife family of Duff. In 1735 William Duff, who had large estates in Banffshire and Aberdeenshire, was created an Irish baron, and in 1759 Earl Fife and Viscount Macduff. James, the 5th earl, was created a British peer in 1857 as Baron Skene. He died in 1879 and was succeeded by his son, Alexander William George, who, on his marriage in 1889, to Louise, eldest daughter of the Prince of Wales, was created Duke of Fife. On his death, Jan. 29, 1912, his Irish title, that of Earl Fife, became extinct, but the British dukedom and earldom, under the special remainder, passed to his elder daughter, Princess Alexandra, who became Duchess of Fife. She was born May 17, 1891, and in Oct. 1913, married her cousin, Prince Arthur of Connaught. Their son, the heir to the title, is known as the Earl of Macduff. The Princess Royal, wife of the duke, died Jan. 4, 1931.

Fig Genus of fruit bearing trees (*figus*). The common *f. carica* cultivated from antiquity in the Mediterranean region, bears pear-shaped receptacles containing nearly closed cavities within which the flowers are fertilised, largely through the agency of wasps, assisted artificially. It was introduced into England in Tudor times, but fruit ripened there cannot rival the figs of commerce which come from Asia Minor and thereabouts. The sycamore fig, *f. sycomorus*, yielded the light wood which the Egyptians used for mummy cases. See BO-TREE.

Figaro Chief character in Beaumarchais' comedy, *The Barber of Seville*, 1775. He reappeared as a valet in *The Marriage of Figaro*, 1784, and as a subdued philosopher in *La Mère Coupable*, 1792. He personified adroit wit, courage and gaiety. Rossini utilised the first play and Mozart the second, for still better known operas. The name was adopted by a satirical Parisian journal founded in 1826, and revived in 1854. It still exists as a morning daily, with a literary supplement and an illustrated monthly.

Fighting Fish Small freshwater spiny-finned fish (*betta*). It is found in both Asia and Africa and seldom exceeds 4 ins. in length. In Siam one species, *b. puynax*, is bred for sporting contests, under recognised rules, the combats being watched by numerous spectators and associated with heavy betting. Normally greyish-brown, the fish assume dazzling liveries during the breeding season and when fighting.

Fighting Top Term applied to a structure of varied character built high up on the mast of a war vessel. In ancient times it served as a place for archers and later for riflemen. In modern vessels the fighting top is used as a station for officers in charge of the fire control.

Figwort Genus of herbs of the snapdragon order (*scrophularia*).

They are natives of Europe, temperate Asia, N. Africa and, rarely, of America. Often fetid, they are mostly possessed of creeping rootstocks and opposite leaves, the panicles of greenish-purple or yellow flowers bearing two-valved capsules. A decoction made from the knotted figwort, *s. nodosa*, is an empirical remedy for swine scab.

Fiji Group of islands in the Pacific Ocean. They form a British Crown Colony and cover 7100 sq. m. Of the 250 islands about 80 are inhabited. The three largest are Viti Levu, Vanua Levu and Taviuni, and since 1880 the colony has included the island of Rotuma, some distance from the main group. Suva on Viti Levu is the capital. The soil is very fertile and sugar, coconuts, bananas and other tropical products are exported. The islands, which are inhabited by a native race, were discovered by Tasman in 1643. In 1874 they became British. They are under a governor who is also high commissioner for the Western Pacific, an executive council of eight members and a legislative council of 21, partly elected and partly nominated. Pop. 174,000 of whom, 90,000 are Fijians; 70,000 Indians and 4500 Europeans.

Filbert Fruit of cultivated varieties of hazel (*corpus avellana*). A leathery husk encloses the nutshell. It grows especially in Kent, and is much esteemed in America. Larger varieties are known as cobs. The name comes from S. Philibert, whose day, Aug. 22, fell in the nutting season.

Fildes Sir Luke. English artist. Born at Liverpool, Oct. 18, 1844, he studied at South Kensington and the Royal Academy Schools, and for a number of years produced black and white illustrations for books and magazines. His paintings, of which *The Doctor* in the Tate Gallery, London, is a well-known one, are of a sentimental and somewhat mechanical character. From 1887, when he was elected a Royal Academician, he did little but portrait painting. He was knighted in 1906 and died Feb. 27, 1927.

File Steel tool furnished with sharp edged ridges or points. It is employed for smoothing irregular metal surfaces and to sharpen saws. Some are round or square, others triangular or flat and either parallel edged or tapered. A float-cut file has parallel furrows, whilst a cross-cut file has the furrows crossed. Another kind of file is a folder, often fitted with clamps, in which records and correspondence are kept.

Another file is a body of soldiers ranged one behind another: hence the phrase rank and file.

Filey Urban district and watering place of Yorkshire (E.R.). It is 9 m. from Scarborough, 240 from London, on the L.N.E. Rly. The town has good sands, bathing and other attractions for visitors, including the gardens. It stands on Filey Bay; to the north is a ridge of rock nearly 1000 yds. long called Filey Brig. Pop. (1931) 3730.

Filigree Ornamental work carried out in fine wires of gold, silver, copper or other metal. The wire is arranged in the required pattern upon charcoal and is exposed to heat when, the charcoal being reduced to ash, the welded filigree work is left. Granular filigree was made by the Etruscans by welding together very minute globules of gold to form wire-like designs of great beauty and delicacy. Often filigree is combined with work in enamel and precious stones.

Filipinos Collective name for the Christianised natives of the Philippine Islands. Of Malay descent, they number 8,500,000: the remaining 3,500,000 inhabitants of the islands are largely Moslems and pagans. Before the American occupation, 1898, a Liga Filipina sought to improve their condition. See PHILIPPINE ISLANDS.

Fillmore Millard. American president. Born Feb. 7, 1800, in the state of New York, he began life as a teacher, later becoming a lawyer at Aurora. In 1829 he was elected to the state legislature. He sat in the House of Representatives, 1833-35 and 1837-43. In 1848 he was elected vice-president and on the death of Zachary Taylor in 1850 he became president. His short term of office, which ended in 1852, was not very distinguished. In 1856 he was a candidate for the presidency again, but only one state voted for him. He died at Buffalo, March 8, 1874.

Film In photography the flexible material used instead of glass in the making of negatives. It was first introduced for general photographic work by the Eastman Co. in 1891. The particular value of the film for cinematographic work was soon recognised by Edison, who used it first in his kinetoscope, since when the cinematographic film has grown in importance. Celluloid was originally used as the material of films, but owing to its inflammability a non-inflammable film made from cellulose acetate is now in use.

The making of films for the cinema houses is an enormous industry, in which perhaps £400,000,000 is invested. Its chief centre is Los Angeles, but films are also made in the studios at Bilstree, Shepherd's Bush, Ealing, and other places in England. A duty is charged on all films imported into Great Britain and since 1927 it has been compulsory for a certain proportion, increasing each year to 1936, of British films to be shown. Films are censored by a board appointed by the trade. In 1932 it was decided to establish a national film institute from funds obtained from the Sunday opening of cinemas. See CINEMA TOGRAPH.

Filter Apparatus for separating suspended particles from a liquid. A great advance has been made during recent years in the study of filtration and the designing of filters. The pervious materials for filters are very varied and range from special absorbent paper and various fabrics to sand, powdered glass, quartz, charcoal, stoneware, asbestos and iron gauze. Public water supplies are filtered through sand and thus, not only suspended solids, but also pathological bacteria are removed. Filtration is an important process in many industries; for example, in the manufacture of sugar, beer, oils, chemicals, paint, etc.

Finance Management of money. National finance concerns the income and expenditure of the nation and similarly there are local and other kinds of finance. The finances of business houses have passed largely into the care of trained accountants. The proposals put forward each year by the Chancellor of the Exchequer are embodied in the Finance Act.

Finch Name of various small perching birds (*Fringillidae*). Members of the finch family are distributed over all temperate regions except Australasia. The name occurs almost always in composition, e.g., the common British resident bullfinch, chaffinch, goldfinch, greenfinch, and hawfinch,

and the casual visitors citril, serin and snowfinch. Closely allied are the resident siskin, bunting, house sparrow, linnet and redpoll, and the migrant brambling. Their hard, conical, smooth-edged bills facilitate the shelling and eating of seeds.

Finchley Urban district of Middlesex, really a suburb of London. It is about 6 m. to the north of the city and consists of several districts. Pop. (1931) 58,961.

Findhorn River of Scotland. It rises in the mountains of Inverness-shire and flows through Elgin and Nairn to the Moray Firth. It is 62 m. in length. There is a small seaside resort of the same name on the east side of Findhorn Bay, an opening of the Moray Firth.

Findon Village of Kincardineshire. It stands on the coast, 6 m. from Aberdeen and is a fishing centre. The Findon or Finnon haddock takes its name from here.

An English Findon is a village in Sussex. It is near the Downs, just outside Worthing.

Fine Arts Term used to include such forms of art as painting, drawing and sculpture, to distinguish them from those which are more mechanical, utilitarian and of the nature of crafts. The term, however, is a somewhat loose one, as obviously the various branches of art overlap one another.

To look after matters affecting fine arts in Great Britain a Royal Fine Arts Commission was set up in 1924.

Finedon Urban district of Northamptonshire. It is 6½ m. from London by the L.M.S. Ry., and is 3 m. from Wellingborough. Iron is mined, and shoes and boots are manufactured. Pop. (1931) 4100.

Fingal Scottish hero, corresponding to Morven in Argyllshire and was a great warrior, who was killed in battle. He is remembered by many legends and by the cave in Staffa, called Fingal's Cave. Discovered in 1772, it is the most famous cave of its kind, with columns of basalt on which the light makes wonderful effects.

Finger Terminal member of the hand. Each hand has five, the name being sometimes reserved for the four digits, excluding the thumb. The three joints are united by ligaments, whose back and front tendons straighten and bend the digits. Two small arteries and nerves line each side. The skin is strong and sensitive, the tip being specialised into a nail: the finger itself lacks muscle or flesh. The sense of touch is in the fingers and in some persons, especially the blind, is highly developed.

Finger-and-Toe Popular name of a destructive plant disease. It causes malformation of cruciferous root crops, such as turnips, radishes and cabbages. Also called anbury and club root, it is caused by a microscopic slime fungus, *plasmodiophora brassicae*, whose spores in the soil enter the root, producing nodules or warty outgrowths which sometimes swell and rot with offensive odour. The disease is infectious and difficult to eradicate: lime dressing sometimes reduces it. Diseased roots should be burnt and not fed to stock.

Finger Print Impression of the human finger. It was used in ancient times in the East as a potentate's sign manual.

Sir W. Herschel introduced it into Bengal

law courts for purposes of identification in 1858, and Sir E. Henry into the Bengal police for crime detection. Sir F. Galton laboured long to show the unchanging character and individuality of every finger tip's ridges and furrows. Henry devised a practical system of classification for the London metropolitan police, based on arches, loops, whorls and composites, with seven sub-classes, only simple recording appliances being required. A classified finger print index to all known criminals, exceeding 250,000, is kept by the London police.

Finistère Cape of Spain. It is the north-west point of the country, owing its name (land's end) to its position. Here the British fleet gained a victory over the French on May 3, 1747. For this Admiral George Anson was made a peer.

A department of France is named **Finistère**. This is part of Brittany, in the north-west of the country. Quimper is the chief town.

Finland Republic of Europe. Russia, Sweden and Norway form its land boundaries, whilst on the south and most of the west its borders are the Baltic Sea, on which it has 1200 m. of coast line. Its area is 132,600 sq. m. including the Åland Islands and a number of other islands. Most of the land is flat and there are many large lakes. Part of Lake Ladoga and a piece of Lapland are in the republic. Helsingfors (or Helsinki) is the capital and the largest town. Others are Åbo (Turku), Tampere, Viborg and Vasa.

For some centuries Finland was part of Sweden, but in the 16th century it became a grand duchy. In 1809 it was handed over to Russia, which had previously secured part of it and the tsar became grand duke. Later there was a good deal of trouble between the Finnish and the Swedish elements in the population.

The country was, in 1917, declared a sovereign and independent state. It is governed by a president, elected for six years by universal suffrage, and a council of state. These are responsible to a house of representatives of 200 members. Socialism is very strong in the country and against communism repressive measures were found necessary in 1930. The chief occupation is agriculture. Rye, barley and oats are grown. There are immense areas of forest and timber and pulp are the principal exports. Horses and cattle are kept, and butter is made. The railways are state owned and transport, especially of timber, is facilitated by the numerous lakes which are joined by canals. Finland has an army recruited by universal service, a small navy and an air force. Lutheranism is the national religion. The country adopted prohibition, but in 1932 it was abandoned.

The unit of currency is the markka, worth 11d. and stabilised at 39.70 to the dollar. The Bank of Finland is the state bank. The metric system of weights and measures is used. The population of the republic is 3,611,791. Of these about 350,000 speak Swedish, nearly all the others are Finns.

The **Gulf of Finland** is a branch of the Baltic Sea. It is 250 m. long and lies between Finland and Estonia.

Finn Legendary hero. He is associated with both Ireland and Scotland and many stories are told about him. He was the son of a king and became the leader of the Fianna. The word Finn means fair one. In Scottish legend he is known as Fingal.

Finsbury Metropolitan borough of London. It is in the north of the city of London and includes Clerkenwell. In it are the Charterhouse and Bunhill Fields. Finsbury Pavement, Finsbury Square and Finsbury Circus are in or near the borough. Pop. (1931) 69,888.

Finsbury Park is a district just outside the boundary of the county of London. The name is primarily that of a recreation ground opened in 1869, but has become attached to a great railway junction and traffic centre, where the L.N.E. and Underground Rlys. connect.

Finsen Light Apparatus invented by Finsen (1860-1901) for the treatment of the virulent skin disease, lupus. The actinic rays from an arc lamp are transmitted through a light filter and, after being concentrated by passing through quartz lenses and cooled by a stream of water, are brought to bear upon the diseased part.

Fir General name for various resinous cone-bearing trees yielding useful timber. The true, or silver, fir, *abies pectinata*, abounds in central and S. Europe, often reaching in English parks a height of 90 ft. The Norway spruce fir, *picca excelsa*, Europe's steepest tree, may reach 170 ft. Other genera yield the hemlock, Douglas and Japanese parasol firs. The needle-like leaves of firs grow singly on the shoots, not in sheathed clusters, as in larches and pines: the Scotch fir, *pinus sylvestris*, is properly a pine.

Firdousi Persian poet. His real name was Abul Kasim Mansur, and he lived from about 940 to 1020. His great work is the epic poem, *Shahnamah* or *Book of Kings*, which contains 60,000 lines and relates the history of Persia from the earliest times.

Fire Any manifestation of glowing heat, more particularly the visible heat and light produced by high temperature on combustible or inflammable substances. Combustion may be attended by flame, with or without non-luminous vapour or smoke. Fire is generated naturally by solar radiation and other means. After being recognised by primeval man as a physical fact, it was slowly brought under control, utilised for defence against wild beasts, preserved, artificially produced at will and converted into a mighty auxiliary of man's conquest of the globe.

The worship of fire is still practised by some primitive people of Africa, Asia and America. In ancient Mexico, in pre-Aryan India and in early Persia, fire worship was an important element of the popular religion.

FIRE INSURANCE.—Insurance against loss by fire is one of the oldest and most important branches of insurance. It is undertaken by all large offices and practically every building in the civilised world is insured against fire, as well as furniture and other household possessions. In Great Britain the premium on an ordinary house or shop is very low, but it is higher on factories, especially those where any inflammable material is used. The premium is reduced in cases where fire extinguishing apparatus is installed.

Fire Alarm Device for giving an alarm on the breaking out of a fire. There are many types, most of which depend upon the expansion of a substance when heated. In one an electric bell circuit is connected with two platinum wires fused into a thermometer tube; one wire is in con-

tact with the mercury in the bulb, the other is placed at a point above the mark of normal temperatures. When the mercury rises to the upper wire, the circuit is completed and the bell rings. In 1930 a fire alarm of the loud-speaker type was installed in Edinburgh.

Firearm Weapon discharged by means of gunpowder or other explosive. In the 14th and 15th centuries primitive cannon or bombards were made of wood, leather or iron bars, and threw stone balls; these in the 16th century were replaced by cast iron, brass or bronze cannon and mortars. Soldiers were armed first with the arquebus and later with the matchlock, musket and pistols. In the 19th century, with the adoption of the percussion cap, the breechloader came into use, followed by the rifle and revolver.

A person may not possess, use or carry a firearm unless he holds a certificate which costs 5s. for the first year and 2s. 6d. afterwards, and in addition with a few exceptions, either a gun licence (costing 10s. a year), or a game licence (costing from £1 for 14 consecutive days to £3 for a year) is necessary.

Fire Brigade Body of men equipped with outbreaks of fire. Every town and urban district has its fire brigade. The larger ones consist of paid men always on duty; the smaller ones of volunteers. The equipment consists of powerful motor pumps, hose, ladders, etc. The largest fire brigade, the London Fire Brigade, has a staff of 2000 men. Its offices are at 94 Southwark Bridge Road, London, S.E. 1.

Fireclay Variety of clay able to withstand high temperatures owing to the absence of fusible constituents. It resists corrosion and is unaffected by sudden changes of temperature. Fireclay is worked at Stourbridge and many places in the coalfields and is used for making crucibles, stove-backs, furnace and oven linings.

Fire Damp Term applied by miners to methane or marsh gas. It tends to accumulate in coal mines, escaping especially when there is a sudden drop in atmospheric pressure. Marsh gas when mixed with air explodes with great violence in contact with a naked flame, hence the necessity for the use of safety lamps.

Fire Engine Mechanical device used by means of water, for extinguishing fires. The earliest type was a brass hand squirt or pump, but in 1672 the first manual engine with flexible leather hose was invented. Steam fire engines came into use in London in 1860, but the modern type is petrol driven with pumps capable of throwing heavy streams of water to a considerable height.

Chemical fire engines are now used in some cases, utilising materials which evolve carbon dioxide as a gas or as foam.

Fire Escape Device for facilitating escape from a burning building. It may be merely a knotted rope fastened to a window frame, or a more elaborate device for lowering a person to the ground. Another form of escape is provided by external iron staircases to high buildings. The modern portable wheeled fire escape possessed by the fire brigade has telescopic ladders usually in three or four sections mounted upon a two-wheeled base and capable of reaching a height of over 80 ft.

Firefly Name given to certain types of beetles which possess luminous organs. The firefly of tropical America belongs to the group of click beetles and is remarkable for the brilliance of the light it emits. Its European representative, the glowworm, possesses luminous organs along the edges of the last abdominal segments.

Fireproofing Method of treating fabrics, wood or paper with chemical solutions to render them more or less noninflammable. Sodium silicate, sodium tungstate and potassium tungstate are used extensively for this purpose. Among other chemicals the following have been suggested, borax, ammonium chloride, phosphate and sulphate, alum, salt, sodium sulphate and zinc sulphate. Slag wool is used as a fireproof covering for steam pipes and flooring, and special fireproof paints, or the application of limewash are useful for preventing wood from catching fire.

Fire Ship Device used in ancient and mediæval warfare. A vessel filled with tar and other inflammable material was set alight and allowed to drift among enemy ships in order to ignite them and create a panic. A number of fireships were used against the vessels of the Great Armada when they were anchored in the Calais Roads on the night of July 27, 1588, causing a panic and the scattering of the Spanish vessels.

Fireworks Devices or preparations of nature used chiefly for purposes of display. Pyrotechny, or the art of the making of fireworks, has been known in the East from remote times, and was introduced into Europe about the 13th century. In the 17th century, pyrotechny was well advanced, but the greatest progress in the art took place in the 19th century with the introduction of chlorate of potash, magnesium and aluminium giving colour effects and greater brilliancy.

Pyrotechnic compositions consist of substances such as charcoal and sulphur, which ignite or explode in contact with an oxygen yielding substance, such as nitro or chlorate of potash. Some mixtures containing nitre, sulphur, charcoal and powdered metals, produce force and sparks; others with a chlorate base give flame, colours being produced by metallic salts. Their manufacture is strictly supervised by the Home Office, and is carried out under conditions laid down by the authorities.

Firework displays are given at fêtes and celebrations of any kind. Those at the Crystal Palace, London, are famous.

Firkin Measure once used for liquids. It equalled 9 gallons, or a quarter of a barrel, and was chiefly used for beer. A firkin of butter weighs 56 lb.

First Aid Term used for the assistance given at once in case of accident or sudden illness. A knowledge of a few simple rules about stopping bleeding, etc., is often the means of saving life. Lessons in first aid methods are given to both men and women by the S. John Ambulance Association, the British Red Cross Society, the S. Andrew's Ambulance Society (a Scottish organisation) and other societies all over the country.

Firstborn Term denoting, in Jewish life, "that which openeth the womb." It is employed even when no second child follows. To commemorate the

deliverance from Egyptian bondage all first-born human males were consecrated, but after one month were redeemable; as a substitute for this national obligation, the tribe of Levi was chosen for service, thus inaugurating the hereditary priesthood. The redemption of the first-born 30 days after birth is still solemnised. Firstling animals if clean were sacrificed, if unclean were redeemed.

First Empire Term used by historians for the period in France between 1804 and 1814. In May, 1804, Napoleon was made emperor and his empire existed until his abdication in April, 1814. The second empire was the period, 1852-70, when his nephew, Napoleon III., was emperor.

First Fruits Earliest gatherings of a season's crop. The Jews made an offering to God of a portion of the first fruits, a sixtieth or a fortieth. Voluntarily observed in the early Christian church, the fruits were later claimed by the clergy as part of their stipend. First fruits were sometimes payable under feudal law; and in the 12th century the papacy claimed this feudal right over all benefices in Christendom. These were paid often under protest in England until the Reformation, when they were made part of the royal income. Elizabeth reserved such annates for the crown; Anne restored them to the church as Queen Anne's Bounty.

First Offender Term used in English law for a criminal who has committed only one offence. In 1887 a law was passed ordering magistrates to bind over such persons to be of good behaviour instead of sending them to prison. The offence with which the first offender is guilty must, of course, be a minor one. To-day first offenders are often put in charge of a probation officer who looks after them for a stated period, as provided for by an Act of 1907, which replaced that of 1887.

First Republic Term used by historians for the period from 1792 to 1804 when France was a republic. The monarchy was abolished in 1792 and in 1804 Napoleon was declared emperor. The second republic began with the fall of Louis Philippe in 1848 and ended in 1852 when Louis Napoleon made himself emperor. The third republic began on the fall of Napoleon III. in 1870 and is still in existence.

Firth Name common in Scotland for an arm of the sea such as the Solway and Pentland Firths, and named after the rivers where these enter such as the Clyde, Forth and Tay. In England a firth is called an estuary and fiord is the Norwegian equivalent.

Fish Word popularly designating a swimming animal. Loosely applied to such marine mammals as whales and dugongs, such amphibians as newts, and such invertebrates as cuttle-fish, shell-fish and star-fish, it properly denotes a class of cold-blooded vertebrates living in water and breathing through gills. The body is usually covered with scales and the limbs, when present, are represented by paired fins. Reproduction is mainly by eggs fertilised after being spawned. The study of fish is called ichthyology. See FISHERIES.

The preserving of fish for food purposes is a large industry. At Yarmouth and elsewhere in Great Britain the curing of herrings

is carried out on a large scale. Salmon, lobster and other fish are canned, an important industry in British Columbia and California. Cod is cured in Newfoundland and Norway. Sardines and anchovies are prepared and packed in oil in France, Italy and Spain.

To conserve the supply of fish, hatcheries, as they are called, have been established. In England these exist for trout; in North America they are used on a large scale for the breeding of salmon and other river fish.

Fisher Andrew. Australian statesman. Born near Kilnarnock, Aug. 29, 1862, he worked for some time as a coalminer, and in 1885 went to Queensland, where he was elected to the state legislature in 1893. In 1900 he became a member of the Commonwealth parliament. He was minister of trade and customs in 1904, leader of the Labour party in 1907, and prime minister 1908-09 and 1910-13. He became High Commissioner in England in 1916, resigning in 1921. He died Oct. 22, 1928.

Fisher Herbert Albert Laurens. English historian and politician. Born in London, Mar. 21, 1865, he was educated at Winchester and New College, Oxford, remaining there as lecturer and tutor in history until 1912, when he was appointed vice-chancellor of Sheffield University. He entered parliament in 1916 and was president of the board of education from 1916 to 1922, being responsible for the Education Act of 1918. He resigned his seat in 1926. A year earlier he had been appointed warden of New College, Oxford. He has written many books on historical subjects, including *Studies in Napoleonic Statesmanship*, 1903. In 1928 he was made president of the British Academy.

Fisher John. English prelate. Born at Beverley about 1159, he was educated at Cambridge and in 1501 was consecrated Bishop of Rochester. In 1527 he was the only bishop who refused his assent to the declaration that the marriage of Henry VIII. to Catherine of Aragon was unlawful, and in 1531 again stood alone in refusing to swear to the Act of Succession. He was sent to the Tower, and while in prison was given by the pope a cardinal's hat. He was beheaded on Tower Hill, June 22, 1535, for refusing to recognise Henry as head of the church. In 1886 Fisher was beatified.

Fisher 1st Baron of Kilverstone. British admiral. John Arbuthnot Fisher was born in Ceylon, Jan. 25, 1841, and entered the navy in 1851, on board the *Victory* at Portsmouth. From 1855-1882, he saw much service during the Crimean War and in Chinese and Egyptian waters, being captain of the *Inflexible* at the bombardment of Alexandria. He became first sea lord in 1904, resigning in 1910, but was recalled in Oct. 1914, finally resigning on May 15, 1915. He was knighted in 1894 and when a barony was conferred in 1909 he took the title of Lord Fisher of Kilverstone, Norfolk. He died July 10, 1920.

Fisheries Industry that provides a vast quantity of food for mankind. The most valuable fishing grounds in the world are the northern waters of the Atlantic Ocean, and Great Britain and the United States are the chief participants in the industry. France, Norway and Canada are other nations with valuable fisheries.

British fishermen take part in the cod fisheries off Newfoundland and in fisheries in other parts of the world, but their chief sphere

of operations is the North Sea, which is very rich in fish valuable for food. Accordingly, Yarmouth, Grimsby, Aberdeen and other places on the east coast are the chief British fishing ports. The herring is the chief fish caught, but haddock, mackerel, sole and turbot are also brought in. Pilchards are caught off the coast of Cornwall.

The fisheries of the United States include a vast quantity of shell fish and salmon, the latter being caught chiefly in the rivers of the Pacific coast. Somewhat similar are the Canadian fisheries. Norway concentrates chiefly on the cod and the herring. France has valuable fisheries in the Mediterranean, where the anchovy, sardine and tunny are found. Japan and Russia have also extensive fisheries, Russia producing sturgeon in great quantities.

REGULATION AND CONTROL.—International law recognises the seas are open to all nations equally for the purpose of fishing therein, except for a belt round the coast which is the exclusive property of a particular nation. In certain areas, *e.g.*, Newfoundland, fishing rights are regulated by treaty.

To look after the fisheries each nation has a department of state. These collect statistics, issue regulations and from time to time take part in international and other conferences. In England this is the Ministry of Agriculture and Fisheries: in Scotland, it is the Fishery Board.

MODERN DEVELOPMENTS.—Of late years great improvements have been introduced into fishing methods, which, until the 19th century, had been much the same for, perhaps, 2000 years. Steam trawlers took the place of fishing snacks and more important still was the introduction of refrigerating methods, which enables the fish to be kept fresh and the fishing fleet to remain longer at sea. Sounding and other apparatus have been introduced to locate the whereabouts of the shoals. Scientists have also been employed to investigate the habits of fish and to suggest methods for conserving the supply.

In 1925 over 1,000,000 tons of fish, valued at £18,000,000, were landed in the ports of England and Scotland, not including either shell fish or salmon caught in the rivers. About 11,000 boats were employed and nearly 60,000 persons engaged in manning them. Nearly half the catch (100,000 tons) consisted of herrings. Cod and haddock were the next in importance. Whale and seal fisheries, being distinct branches, are not counted in the totals of national fisheries.

Fishguard Seaport, urban district and market town of Pembrokeshire. It stands on the little River Gwael, 12 m. from Haverford-west and 261 from London. There is a good harbour and the G.W. Ry. runs a service of steamers from here to Cork, Waterford and Rosslare, Ireland. There is a little fishing. In 1797 a small French force landed here, but it was soon made to surrender. Pop. (1931) 2963.

Fishing Occupation or sport of catching fish. It is one of the oldest of human pursuits and was at first carried on solely to provide food. To-day it has become a sport, as well as an industry of enormous proportions. As a sport fishing is usually called angling and is pursued chiefly in rivers, although a certain amount is done in the sea. The rod and line are invariably used, and

according to the fish sought. Fishing for salmon, for example, is quite different from fishing for trout.

When carried on as a business, as it is in almost every country with a seacoast, fishing is chiefly done at sea, although there are extensive salmon fisheries in some of the rivers of North America and in the Great Lakes. The fish are usually caught with a net which may be let down into a shoal and swept through the waters by trawlers. In fishing for shell fish which is quite another branch, traps are usually employed. See ANGLING.

Fishmonger Dealer in fish. The Fishmongers Company is one of the great livery companies of London. It existed in the 14th century or earlier and for long had the monopoly of the fish trade in London. It has an income of nearly £50,000 a year and its hall is near London Bridge.

Fitton Name of a noted Cheshire family, also spelled Fytton. They owned land at Gawsworth where they lived for some centuries and where there are memorials to them in the church. Sir Edward Fitton, or Fytton, was lord president of Connaught in the time of Elizabeth. Sir Alexander Fitton was lord chancellor of Ireland. He followed James II. to France and was the last Fytton to hold the Gawsworth estate. The most famous member of the family was Mary Fitton, mistress of William Herbert, 3rd Earl of Pembroke, and presumably the "dark lady" of Shakespeare's sonnets.

Fitzgerald Edward. English poet. Born at Woodbridge, Suffolk, Mar. 31, 1809, he was the son of John Purcell, who took his wife's name of Fitzgerald in 1818. Educated at Bury St. Edmunds and Trinity College, Cambridge, his life was very uneventful. His fame, however, was chiefly due to his translation from the Persian of *The Rubáiyát of Omar Khayyám*, first published in 1859. Other works from his pen are *Six Dramas of Calderon*, 1853, *Salman and Absal*, 1856, and *Readings in Crabbe*, 1882. He died June 11, 1883.

Fitzgerald Family. A historic Irish house, descended from Walter, son of Other, who is mentioned in Domesday Book as castellan of Windsor. His youngest son, Gerald, captain and constable of Pembroke Castle, married Nesta, sister of a Welsh prince, and became ancestor of the Fitzgeralds. The house was granted the Earldom of Kildare in 1316, and the 20th earl received the dukedom of Leinster in 1766. The heir to the dukedom carries the title of Marquess of Kildare.

Fitzherbert Maria Anne. Wife of George IV. The youngest daughter of Walter Smythe of Brambridge, Hampshire, she was born in 1756 and married in 1775 Edward Weld of Lulworth Castle, Dorset. In 1778 she became the wife of Thomas Fitzherbert of Swinerton, Staffs., who died in 1781. Four years later she met the Prince of Wales, to whom she was privately married, Dec. 21, 1785. Being a Roman Catholic, the union, according to law, was illegal, but not necessarily invalid. However, in 1795 George IV. married Caroline of Brunswick. He later lived with Mrs. Fitzherbert again until 1803 when the connection was severed. She was granted an allowance of £6000 a year and died Mar. 29, 1837.

Fitzroy River of Queensland. It is a union of the Dawson and the Mackenzie and flows through a very fertile country. It falls into the sea at Keppel Bay. Rockhampton stands on it and it is navigable by small steamers to that place.

Another **Fitzroy** is a river in W. Australia, in the extreme north of the state. It flows for 300 m. in a westerly direction and falls into King Sound on the Indian Ocean. **Fitzroy** is also the name of a north-east suburb of Melbourne.

Fitzroy is the family name of the Duke of Grafton, a descendant of Charles II. and the Duchess of Cleveland. A member of the family, **Robert Fitzroy** (1805-65) commanded the *Beagle* in 1831, when Charles Darwin was on board as naturalist. From 1843-45 he was Governor of New Zealand and afterwards meteorologist to the Board of Trade, his discoveries being of considerable value.

Fitzroy **Edward Augustus**. English politician. A member of the Duke of Grafton's family, he was born July 24, 1869. Having passed through Eton and Sandhurst, he joined the 1st Life Guards. In 1900 he entered the House of Commons as M.P. for S. Northamptonshire and retained his seat until 1906, being again M.P. 1910-18. In 1918 he was elected for the Daventry division, as he was at all later elections to 1929. From 1922-28 Captain **Fitzroy** was Chairman of Committees in the House of Commons; in 1928 he was elected Speaker.

Fitzsimmons **Robert**. English pugilist. Born at Ickton, Cornwall, June 4, 1862, at the age of nine he emigrated to New Zealand, and was trained as a blacksmith. He won a heavyweight competition for novices promoted by Jim Macco, and soon after entered the professional ranks, securing heavy and middle-weight championships of the world. He fought his last match in 1912 and died Oct. 23, 1917.

Fitzwilliam **Earl**. Title held by the family of **Fitzwilliam** since 1716. **Sir William Fitzwilliam** became prominent during the reign of Elizabeth, being Lord Deputy of Ireland 1571-75 and 1588-91. His grandson became an Irish baron in 1620. **William**, the 3rd baron, became an earl in 1716. The 3rd earl, also a **William**, received an English barony in 1742 and an English earldom in 1746.

His eldest son, **William Wentworth Fitzwilliam**, succeeded to the titles in 1756. A Whig in politics, he became, in 1794, President of the Council under Pitt, and in Dec. of the same year Lord Lieutenant of Ireland. In 1798 he became Lord Lieutenant of the West Riding, Yorkshire, but was dismissed in 1819 for excusing the Peterloo Massacre. In 1782 he inherited the great estates of the Wentworths on the death of his uncle, the Marquess of Rockingham. He died Feb. 8, 1833, and the present earl is his direct descendant. The family seat is Wentworth Woodhouse, Yorkshire, and the eldest son is known as Viscount Milton.

Another **William Fitzwilliam**, who died in 1542, was Lord High Admiral of England under Henry VIII. and was created Earl of Southampton in 1537.

Fitzwilliam Museum Museum belonging to the University of Cambridge. **Richard Fitzwilliam**, an Irish viscount, who died in 1816, left to the university his valuable collection of

books, manuscripts, pictures, engravings, etc., also a sum of money. When a sufficient sum had accumulated a building was erected in Trumpington Street, and from time to time further donations were received. In 1931 extensive additions were made to the building by the generosity of the Courtauld family.

Fiume Seaport and city of Italy. It stands on the River Rœina at the north-eastern end of the Adriatic Sea, and is connected by railway with Budapest. There is an arch here dating from Roman times. **Fiume** has some manufactures, but the chief industry is shipping, for which there is an excellent harbour. Since 1929 it has been a free port.

The city has had an eventful history. Until 1914 it was part of Austria-Hungary, although its population was mainly Italian, except in the suburbs of Sushak where Croats predominated. When the World War ended **Fiume** was claimed both by Italy and Yugoslavia, the latter on behalf of the Croats. In Sept., 1919, Gabriele d'Annunzio (q.v.) led a band of volunteers to the city, which he seized for Italy. In 1920 by the Treaty of Rapallo it was made an independent state. This was distasteful to the Italians, causing disorder which lasted until Jan., 1924, when a treaty was made between Italy and Yugoslavia. By this **Fiume** and a small surrounding district was given to Italy, Yugoslavia receiving compensation. Pop. 49,200.

Five Nations Name given to the Iroquois, a group of American Indians. It is due to the fact that it consisted of five tribes—Mohawks, Cayugas, Senecas, Oneidas and Onondagas. Later they were joined by the Tuscaroras and became the Six Nations.

Flag Popular name of various flowering herbs. They usually possess sword-shaped leaves, and mostly grow in moist situations. Several species of iris are known as flags, e.g., the yellow flag, common throughout Britain, and the blue and white flags, equally common in central and S. Europe, from which handsome garden varieties are derived. The **sweet flag**, *acorus calamus*, rare in England, and naturalised in Scotland and Ireland, perhaps came from the Himalayas. The **corn flag** is a gladiolus, the **cat-tail flag** is the reed mace.

Flag Piece of material usually oblong, with a distinctive design, flown as a symbol or sign, at the top of a flagstaff. Each country has its national flag and some have several others. The Union Jack is the national flag of Great Britain and the Tricolour of France. These are flown on public buildings, etc., indicating that they are national property. It is customary to fly them at half-mast on the death of an important person. National flags are also flown over embassies and consulates. A sovereign has his standard or flag which is flown over the house in which he is at the time residing.

Flags play an important part in shipping. Every ship, merchantman or warship, shows her nationality by her flag, and they are also used for signalling. An admiral has a flag which is flown on the ship carrying him, the flagship. Commanding officers of lower rank fly a pennant, a long narrow flag. The flag of the British Navy is the white ensign; the mercantile marine flies the red ensign. Yachting clubs have flags, as have shipping lines, these being called house flags. In the army the flags are known as colours. See ENSIGN.

Flag Day Day on which small flags are sold in the streets for the benefit of a charity such as the National Lifeboat Association. The idea was started during the war period (1914-18), and much money is raised in this way. The idea was soon abused and it was decided that in the metropolitan area no flag day may be held without the consent of the police.

Flagellants Religious ascetics who practise scourging or mutual whipping, for bodily discipline or penance. Arising out of the punitive flagellation of offending priests and monks, voluntary scourging developed, after the 11th century, into a practice which Cardinal Damiani and others advocated. S. Dominic and S. Anthony of Padua were rigorous self-scourgers. Fraternities established in 13th-century Italy conducted public processions. The Black Death in 1348 witnessed revivals of this fanaticism, which was condemned by Clement VI., and stamped out by the Inquisition.

Flageolet Musical instrument. It was a survivor of the old ripple flute or flute-a-bee and had a flute-like high tone. Mozart wrote a part for the flageolet in G in his *Entführung aus dem Serail*, but as the instrument is obsolete in the orchestra this part is now played on the piccolo.

The ordinary six-holed tin whistle is a popular extant form of flageolet and gives a good idea of the tone and appearance of its orchestral prototype.

Flagship Name given to a warship which has an admiral on board. The admiral is in command of a squadron of ships or holds some other command, and has a distinctive flag to denote the ship from which his orders are issued. The *Victory* was Nelson's flagship at Trafalgar, and the *Iron Duke* was Jellicoe's at Jutland. A flagship, like any other vessel, is under a captain who is responsible for her affairs, with which the admiral has nothing to do. A commanding admiral is sometimes called a flag officer; his personal attendant is a flag lieutenant.

Flagstone Hard, fine-grained sandstone capable of being split into thin slices. Having a close texture, great durability and a non-slipping surface, it is used for paving stones, steps, hearths and landings. York stones, a trade name for the Yorkshire flagstones, comprise stones varying in colour from whitish to blue, brown and mottled. The Craigleith flagstone from Scotland is a whitish grey, now largely replaced by artificial slabs.

Flail Wooden agricultural instrument. It consists of two strong sticks bound together by thongs, one forming the handle and the other the striking portion or couple. It was formerly in general use for threshing corn in European countries.

Flamborough Village of Yorkshire (E.R.). It is 4 m. from Bridlington and here is **Flamborough Head**, a promontory 450 ft. high, with a lighthouse and numerous caves.

Flamboyant Style of architecture that prevailed in France in the 15th century. It is a late and debased form of Gothic, and took its name from the flame-like tracery which characterised it. It was little used in England.

Flame Burning gaseous matter. Normally due to its union with oxygen in the air, when the temperature is raised sufficiently. A solid substance gives rise to

flame during combustion when it, or some constituent, is volatilised during the process. The heat of flame varies; in the oxy-acetylene flame it is as high as 2500° C.

During the Great War the German troops who were trained to use liquid fire were called flame-throwers, because they carried blow-lumps which ejected burning liquids to a considerable distance.

Flame Flower Perennial flowering herb. Also called the red-hot poker, it is a native of S. Africa, but flourishes in Great Britain. The leaves, long and narrow, bear bright-red flowers at the end of long stems each thus resembling a poker.

Flamen Class of priests in Rome. Their chief was the flamen Dialis, or priest of Jupiter, whose characteristic vestments included an olive-crown, a white cap and a woollen toga, with a sacrificial knife. His wife, *Flaminica Dialis*, shared with him the daily sacrifices.

Flamingo Order of tall wading birds related to ducks. They are widely distributed in the warmer regions except Australia, and are long-necked and long-legged. Their beaks, abruptly bent down in the middle, serve as scyops when the head is twisted upside down. They are found in great flocks, particularly near the great lakes in Central Africa. The European *Phoenicopterus roseus*, ranging from Cape Verde eastward to Lake Baikal, breeds in the Mediterranean region, making conical mud nests; it is occasionally seen in Britain. The plumage is rosy white, with black marks on the wings.

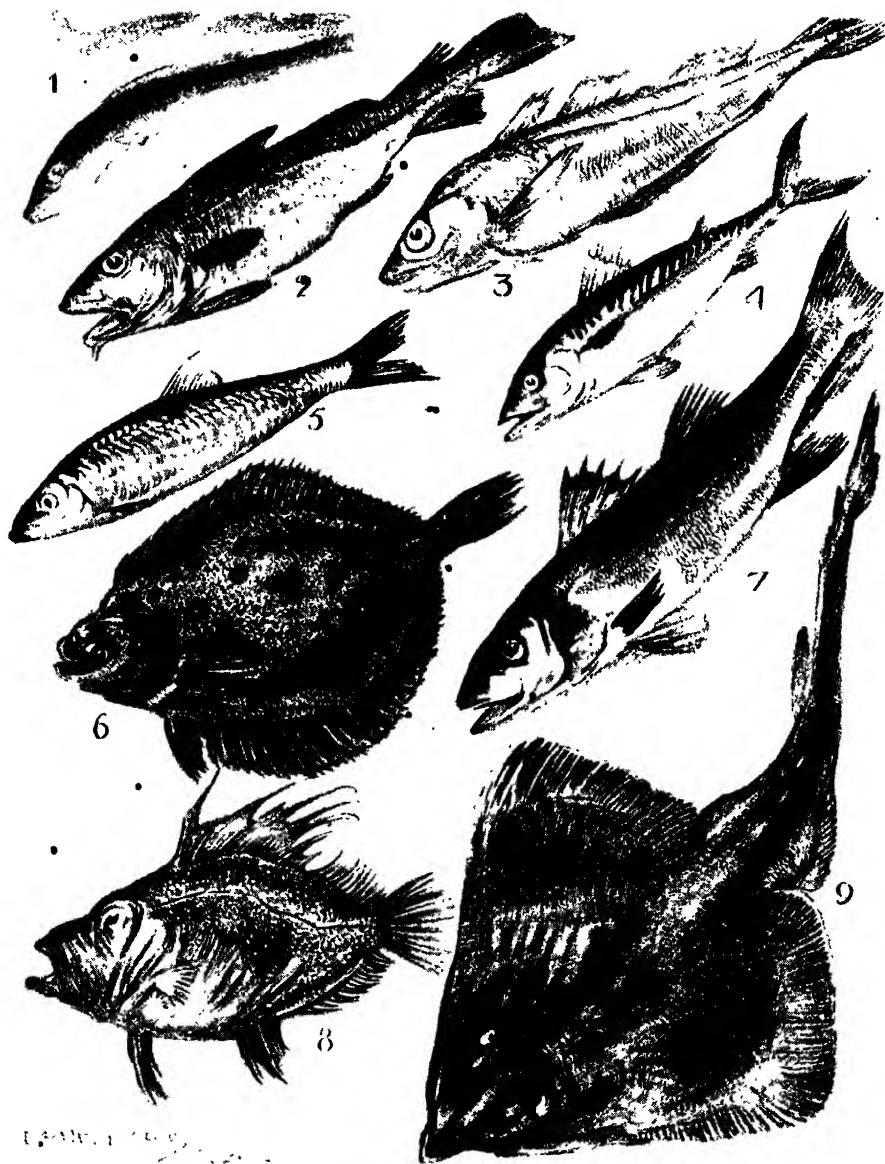
Flaminius Gaius. Roman statesman. He lived in the 3rd century B.C. In 220 B.C. he was censor and built a circus and a road named after him. The latter, the Via Flaminia, led from Rome and was the first Roman road to cross the country. He was killed in the battle of Lake Trasimene, 217 B.C.

Flammarrion Nicolas Camille. French astronomer. Born Feb. 25, 1842, his greatest contribution to astronomy was his efforts to popularise it, by writing and lecturing. His *Popular Astronomy*, translated in 1894, was widely read in England. In 1887 he founded the French Société Astronomique. He died June 4, 1925.

Flamsteed John. English clergyman and astronomer. He was born at Denby, Derbyshire, Aug. 19, 1646, and educated at Cambridge. On the establishment of the Royal Observatory at Greenwich in 1675 Flamsteed was appointed Astronomer Royal by Charles II. at a salary of £100 a year. In 1684 he was presented with the living of Burstow, Surrey. Flamsteed revised the star tables then in use, and published his catalogue of the fixed stars. He died Dec. 31, 1719.

Flanders Name given to a district chiefly in Belgium, but partly in France. Its inhabitants are called Flemings. Belgian Flanders, which is divided into two provinces, E. Flanders and W. Flanders, is the part of Belgium which lies between the French frontier and the estuary of the Schelde. Bruges, Ypres and Ghent are in Flanders, as are the Rivers Lys and Yser.

At one time Flanders, under its own counts, was practically an independent country. From 1385 to 1477, it was part of Burgundy and then a possession of Spain, when it became perhaps the most prosperous part of Europe. In the 17th century parts of it were taken by France, whilst the rest helped to form the district known



BRITISH FOOD FISH.—The commoner varieties of table fish caught in Northern waters. 1, Eel; 2, Cod; 3, Whiting; 4, Mackerel; 5, Herring; 6, Plaice; 7, Bass; 8, John Dory; 9, Skate.

as the Spanish, and after 1714 as the Austrian, Netherlands. In 1794 Austria lost it. At the settlement of 1815 it became part of the kingdom of the Netherlands, and in 1830 of the new kingdom of Belgium. In 1914-18, there was a great deal of fighting in Flanders, especially around Ypres.

Flannel Loosely woven woollen stuff. It is used for clothing, its softness and warmth rendering it especially suitable for sporting wear. Some makes have both sides alike, others a long nap on one side only. Flannel was made in Wales, but the chief British centres are now in Lancashire, especially Rochdale and Yorkshire. Much flannel contains a proportion, sometimes high, of cotton. Blankets are a special branch of the flannel manufacture.

Flannelette is a cotton material made to resemble flannel. It, too, is much used for clothing, but is rather inflammable.

Flash Ornament consisting of three short pieces of black velvet ribbon sewn under the collar and hanging down the back. It is part of the regimental dress of the Royal Welch Fusiliers. Its use dates from the time when queues of hair were worn, and the flash was introduced to prevent these from greasing the coat or tunic.

Flash Point Temperature at which a liquid gives off vapour which will ignite with a flash upon the application of a flame. It is especially used in connection with the products of petroleum. To minimise the danger arising from the use of lamp oils, the legal flash point of paraffin oil is placed at 73° F., to determine which several forms of apparatus have been devised in which oil is slowly warmed and its vapour tested from time to time by a small gas flame at a certain distance above the surface of the oil.

Flashlight photographs are taken by means of an instantaneous brilliant light caused by burning magnesium powder. An electric bulb has now been perfected to serve the same purpose. It possesses the advantage of smokelessness.

Flat In music one of the commonest signs. It means that the note which is marked by it is lowered a semitone.

Flat Self-contained dwelling, usually on one floor and part of a large building. In England since the Great War the use of flats has increased enormously. Many large houses have been converted into flats and new blocks of flats have been built, especially in London; many of them being large and luxurious buildings, as those in Park Lane and Baker St. Some of these are service flats, meals being obtained from a special restaurant or kitchen. The rent of flats usually includes rates and the proprietor generally undertakes to look after the common entrance hall and other common ground. Some flats are let furnished. The law about flats is the same as for other dwellings. See **KATES**; **RENT**.

Flat-fish Family of fishes without air bladders. The 500 species, almost all marine, and inhabiting all seas except the polar, have compressed and flattened bodies, the eyes and nostrils being twisted round to the upper side, and the mouth being awry. The fish swims on one side, and the under side, that rests on the sea floor, is colourless; the other, darkly pigmented, changes colour protectively. The transparent and perfectly symmetrical young swim vertically. Important edible species include the halibut, turbot, plaice, sole and flounder.

Flat Foot Deformity of the foot in which its arch subsides until the sole rests upon the ground. It usually occurs in young persons of poor physique who have been exposed to much standing or to the carrying of heavy weights. There is pain and fatigue, with a tendency to turn the toes outward. A change of occupation, with rest, tip-toe exercises and massage may suffice to cure it, or relief may be obtained from artificial supports such as instep pads. Bad cases may need surgical treatment.

Flatford Village of Suffolk. It is near E. Bergholt, on the River Stour. The mill here was painted by Constable, who also immortalised other scenes in the neighbourhood. In 1928 the mill was presented to the nation, together with the house called Willy Lot's Cottage. The latter is now a guest house for artists.

Flatulence Gas in the stomach or bowels. In the stomach this arises from air gulped down nervously by dyspeptic persons, or from digestive disturbance, and is expelled from time to time noisily into the mouth. In the bowel it usually arises from bacterial fermentation. Marsh gas and hydrogen are formed from vegetables; and sulphuretted hydrogen and carbon disulphide from eggs and peas. There may be unpleasant rumbling, and violent expulsion.

Treatment.—The treatment of flatulence, or wind, which is a symptom of indigestion, should be mainly preventive—avoidance of habits of eating foods known to cause the condition. Meals should be regular, three a day. Nothing should be drunk with food, but plenty of water between meals. Bicarbonate of soda in water, essence of peppermint, soda-mint tablets, all serve to relieve an attack, and charcoal biscuits eaten at the end of a meal are beneficial.

Flaubert **Gustave**. French novelist. Born at Rouen, Dec. 12, 1821, he studied law, but, after travelling for a number of years, took up literature. In 1857 he published *Madame Bovary* for which he and his publisher were prosecuted on a charge of immorality, but the action was dismissed and the book was a great success. In 1862 he published *Salammbo*, a picture of life in Carthage; *L'Education Sentimentale* appeared in 1867 and *La Tentation de St. Antoine* in 1874. Other novels and two plays followed. He died May 9, 1880.

Flavine Basic dye also known as acriflavine. It is derived from a coal tar product, acridine, and consists of a brownish red crystalline powder soluble in water and alcohol. It forms a pure yellow dye for cotton and leather, and is used extensively as a powerful antiseptic in the treatment of sleeping sickness, and in clinical surgery.

Flax Fibre used for linen thread and the plant which produces it. The annual herb, *linum usitatissimum*, has narrow lance-shaped leaves and purplish-blue flowers. It yields handsome garden varieties.

Flax grows in Europe, notably in Russia, also in Ulster, Yorkshire and elsewhere. When ready, the tissues of the stems are separated by a process called retting, and the tough fibres obtained are dried, and when woven form linen. The seed yields linseed oil, used as a painter's oil, the residual cake being a useful cattle food.

New Zealand flax, *phormium tenax*, is a plant of the lily family, of which the leaf fibres are convertible into twine and rope. See **LINEN**.

Flaxman **John**, English sculptor. He was born at York, July 6, 1755, a delicate, somewhat deformed boy and spent his early years mainly in his father's plaster-cast shop. In 1770 he entered the Royal Academy schools in London, and from 1775-87 was employed by the Wedgwoods to design classical friezes and figures for their china ware. Then he turned his attention to executing monumental sculptures and examples of his work are in many cathedrals and churches, especially S. Paul's Cathedral and Westminster Abbey. Made A.R.A. in 1797. Flaxman was elected R.A. in 1800. In 1810 he was chosen Professor of sculpture at the Royal Academy. He died Dec. 7, 1826.

Flea Order of small wingless insects, mostly parasite on mammals and birds. The mouth parts are adapted for piercing and sucking and the adult insect lives on blood, its bite being troublesome. Owing to the length of its hind legs, the flea is enabled to leap, in some species, 200 times its own length.

The human flea, *pulex irritans*, breeds in neglected, dirty houses. Rat fleas convey plague to man, and chicken fleas sometimes attack man, but do not remain with him.

Fleabane Several herbs of the order *compositae*. Their soap-like odour is reputedly obnoxious to fleas. Two British species of *pulicaria* extend to India; one was formerly used as a medicine for diarrhoea and dysentery. There are two British species of *erigeron*, and the Canadian species, *E. canadense*, is naturalised in Britain. Another fleabane, *inula squarrosa*, is called ploughman's spikehead.

Flecker **James Elroy**, English poet and dramatist. He was born at Lewisham, Nov. 5, 1881, and was out East in the consular service from 1910-13. He died of consumption at Davos Platz on Jan. 3, 1915. A poet of great individuality and high quality, his brilliant play, *Hassan*, was published posthumously and produced in 1923.

Fleece Coat of the living sheep removed at one shearing. The interlocking of adjacent hairs renders the shorn clip fairly coherent. Fleece wools are distinguished from dead wools, which are not derived from the living animal. The fleece, after the shearing with hand or power implements, is roughly trimmed and bundled together ready for baling. After reaching the market or factory it is opened, examined and classified, cased fleeces being those of approximately similar quality. See GOLDEN FLEECE.

Fleet River of London, now merely an underground stream. It rose at Hampstead and fell into the Thames at Blackfriars. Its northern part was called the Holbourne and the rest the Fleet Ditch. In the 18th century it was covered in and became a sewer. Its lower course was roughly along Farringdon Rd., Farringdon St., and New Bridge St.

The Fleet gives its name to Fleet St., noted as the centre of the newspaper life of the country. This runs parallel with the River Thames, from the Strand to Ludgate Circus.

The Fleet Prison stood on the east side of what is now Farringdon St. Long one of the most famous of London's prisons, it was destroyed by rioters in 1780, but was soon rebuilt. Before 1850 it ceased to be used as a prison and was pulled down.

Fleet Urban district of Hampshire. It is 36 m. from London, on the S. Rly.

Fleet Pond, covering nearly 100 acres, is one of the largest sheets of water in the S. of England. At Church Crookham, 2 m. away, tobacco is grown. Pop. (1931) 4528.

Fleetwood Seaport, watering place and urban district of Lancashire. It stands at the mouth of the River Wyre, 9 m. from Blackpool, and is served by the L.M.S. Rly. There is a good harbour and large docks, the property of the L.M.S. Rly. Co., from which steamers ply to the Isle of Man and elsewhere. It is also a fishing centre and there is a fine promenade. Pop. (1931) 22,983.

Fleming **Marjorie**, Scottish child immortalised by Sir Walter Scott. She only lived for eight years, 1803 to 1811, but during that time she showed remarkable precocity. She read a good deal and wrote poems, and diaries. Sir Walter Scott saw her at the house of his aunt, Mrs. Keith of Ravelston, and took a great interest in her. Dr. John Brown in *Horae Subsecivae* wrote about her, and her life was written by H. B. Farnie. It is called *Pet Marjorie*.

Fleming **Sir Sandford**, Canadian engineer. He was born at Kirkcaldy, Fife-shire, on Jan. 7, 1827, and went to Canada as a youth. He took an important part in the preliminary survey for a Canadian trans-continental railway, and later, in the establishment of a cable between Canada and Australia. He was largely responsible for the introduction of unified time reckoning, or standard time (g.r.), throughout the world. Died July 22, 1915.

Flemings Name used for the inhabitants of Flanders (g.r.). Many of them settled in England at various times, especially in the eastern counties. They brought with them the weaving industry, and there are evidences of their activities at Dedham and elsewhere in Essex, and the adjacent counties. In the 12th century Henry I. settled some of them in Pembrokeshire and that neighbourhood, but they were disliked and often attacked by the Welsh.

To-day Belgium is inhabited by Flemings, who speak Dutch and inhabit Flanders and other parts in the north-west of the country, and Walloons who speak French and live in the south-east.

Flensburg Seaport of Germany. It stands on Flensburg Fjord in Slesvig, 23 m. from the town of that name. Founded in the 12th century, it has several buildings of historic interest. It is a flourishing port with a good harbour and its industries are chiefly connected with shipping.

Flensburg was Danish until 1864, when it was taken by Prussia who kept it after a plebiscite in 1919. Pop. 70,000.

Fletcher Word meaning a maker of arrows. One of the London livery companies is called the Fletchers. This was united with that of the bowyers or makers of bows. The offices are at 4 Broad Street Place, London, E.C. 2.

Fletcher **Giles and Phineas**, English poets. Phineas, the elder brother, was born in 1582 and his most important work is *The Purple Island* (1633) a Spenserian allegory. The poetry of Giles is religious in character. His epic *Christ's Victory and Triumph* (1610) influenced Milton. Giles died in 1623 and Phineas in 1650.

Fletcher **John**, English poet and dramatist. Son of Rev. Richard

Fletcher, Bishop of London, he was born at Itey, in 1579, and was probably educated at Cambridge. Being left without means he, in collaboration with Francis Beaumont, took to writing for the stage. *The Maid's Tragedy*, *Philaster*, *King and No King*, and many others were produced under their joint authorship, whilst the pastoral drama, *The Faithful Shepherdess*, was the production of Fletcher alone. He collaborated also with Massinger, Rowley and other dramatists, and died of the plague in the summer of 1625. He is buried in the cathedral at Southwark.

Fletton District of Northamptonshire and Huntingdonshire. Some part of it is within the city of Peterborough, but another forms the urban district of Old Fletton. Pop. (1931) 7180. The district is famed for its enormous brickfields from which the popular Fletton brick is obtained.

Fleur-de-lis French royal symbol. Presumably representing a lily or white iris, it was called by Shakespeare the flower-de-luce. It is traceable in Egyptian, Etruscan, Roman and Indian ornament, and was adopted by Louis as the royal ensign of France about 1147, being represented in gold on azure, scattered over the shield. The number of lilies was reduced to three about 1376. It appeared on the arms of England in royal coats of arms from Edward I. onwards, disappearing therefrom in 1801.

Fleury André Hercule de. French statesman. Born at Lodève, June 22, 1653, he was appointed chaplain to Louis XIV. and became Bishop of Fréjus in 1698. He was appointed tutor to the boy who afterwards became Louis XV. in 1715, and in 1726, at the age of 73, Fleury succeeded the Duke de Bourbon as Prime Minister, and soon after was appointed cardinal. He died Jan. 29, 1743.

Flight Navigation of the air. Human flight, the study of which is termed aeronautics, is a development of modern times. The solution of the many problems of flight are dependent upon meteorology for knowledge of atmospheric conditions, engineering experience, the study of physics, and the effect of air upon fuel combustion. With Langley's early studies of the flight of flat surfaces and Lillenthal's experiments with curved surfaces, gliders came into being, and the development of the internal combustion engine made possible the aeroplane and airship. See AERONAUTICS; GLIDER.

Flight Lieutenant Officer of the Royal Air Force. He ranks above a flying officer or observer and below a squadron leader. The equivalent rank in the navy is lieutenant, and in the army captain.

Flinders Matthew. English sailor. Born March 16, 1774, in Lincolnshire, the son of a surgeon, he joined the navy in 1790. From 1795-99, he was in Australasian waters, where he carried out numerous explorations, made surveys, and circumnavigated Tasmania. Sent in 1801 in *The Investigator* to explore the Australian coast, he was wrecked on his voyage home, and falling into the hands of the French, was imprisoned by them for six years in Mauritius. In 1810 he was released. He died July 19, 1814, after publishing an account of his voyages.

A river in Queensland, 220 m. long, is named after Flinders. It falls into the Gulf of Carpentaria.

Flint Crystalline mineral mainly of silica. More opaque and less lustrous than chalcedony, it is dark grey or dark brown in colour, breaks with a shell-like fracture, and occurs in nodules, tabular masses and veins, in the chalk formations of Britain and W. Europe. Flint was employed for walls and buildings in mediæval times and there is much flint in the old churches of the eastern counties of England. Because of its readiness to pulverise, it is utilised in pottery and flint glass manufacture. Fire making by striking flint with iron pyrites, an important neolithic discovery, was long used. The artificial flaking of flints by sharp blows of hammer stones, which may have originated in Africa, led to the invention of flint implements, which during the Stone Age laid the foundations of human progress.

Flint Borough and market town of Flintshire. It stands on the estuary of the Dee, 12 m. from Chester, on the L.M.S. Rly. Before the estuary was closed by sand it was an important seaport. There are chemical works and other industries, and near are coal mines. Here is the castle which was built by Edward I. and is now public property. Flint was at one time the county town. Pop. (1931) 7635.

Flint Lock Kind of firearm also known as firelock. It was in use in the 17th century and was fired by means of a mechanism in which a piece of flint was struck upon a steel face, producing a number of sparks. A lighter form of flint lock was termed a fusil, hence the name fusilier applied to soldiers armed with this weapon. The use of flint locks continued until the middle of the 19th century, when they were superseded by the adoption of the percussion cap.

Flintshire County of Wales. In the north of the county the main part lies between the estuary of the Dee and Denbighshire. A small detached portion lies between Denbighshire and England. There are hills in the county which only covers 255 sq. m. Coal and lead are mined. The rivers Dee and Clwyd flow through it and it is served by the L.M.S. Rly. Mold is the county town; other places are Rhyl, Flint, Holywell, Buckley and Connah's Quay. Pop. (1931) 112,819.

Floating Debt Name given to that part of the national debt which is not funded or converted into consols, war loan, etc. It consists of exchequer bonds, treasury bonds, savings certificates, etc.

Flock Stuffing used for chairs, beds, and other articles. It is usually material which is thrown off in the process of manufacturing woollen cloth, or is made by pulling woollen cloth to pieces. By a law passed in 1911 flock must reach a certain standard of cleanliness or its manufacturers can be prosecuted.

Also used for a herd of sheep, goats, geese or other animals and birds. A flock book is a book which records the pedigrees of pure bred sheep. They are kept by the societies which exist to assist the breeding of the different kinds of sheep and fulfil a similar purpose to the stud books of the stables.

Flodden One of the Cheviot Hills. It is 3 m. from Coldstream and near the Till. A battle was fought here between the English and the Scots Sept. 9, 1513. After a fierce fight the English under the Earl of Surrey gained a great victory, James IV. and his bodyguard of nobles being among the slain. Flodden was long regarded as one of

the most disastrous days in the history of Scotland. It was the theme of much poetry, and Scott describes it in *Marmion*.

Flood Inundation of low lying land. Generally caused by an overflow of water from a river, it is due to excessive rainfall or the melting of snow and ice on the mountains. In the case of great rivers, such as the Mississippi, Hoang-ho and Nile, floods have played an important part in modifying the surface features of the surrounding areas. As a result deltas and fertile flood-plains have been formed, and in some cases the river has made new channels and mouths. The great flood which is recorded in the Bible is usually called the deluge (*q.v.*).

Flood Lighting Lighting of the exterior of a building, generally by powerful, concealed electric lights. It was first introduced in New York, where many large buildings were illuminated at night in this way. In 1931 experiments in flood lighting were tried in England, notably on the Houses of Parliament and other buildings in London and the castle at Rochester. In Sept., 1931, there was a great display of flood lighting on London buildings in connection with the meeting of the International Illumination Congress.

Floquet Charles Thomas. French statesman. Born Oct. 2, 1828. He was deputy for the Seine in the National Assembly of 1871, and in the same year was imprisoned for his Communistic sympathies. In 1876, as a radical republican, he entered the Chamber of Deputies and was President of the Chamber from 1885 to 1888. In 1888-89 he was Premier, during which time he fought a duel with Boulanger. In 1892, being involved in the Panama scandal, he resigned. He died Jan. 18, 1896.

Flora In Roman mythology a flower goddess. A temple was erected for her worship near the Circus Maximus in Rome, and an annual festival called Floralia, lasting from 28th April to 1st May, was held in her honour.

Flora Term used collectively for all the plant life of a given geographical region or geological period, or its enumeration. It corresponds to fauna as designating the animal life.

Florence City of Italy. It stands about the centre of the country, on both banks of the Arno, 45 m. from the coast, and is connected by railway with the other cities of Italy. The Italians call it Firenze and it ranks as one of the most interesting cities of their land and indeed of the world, being full of wonderful buildings and adorned, as few other cities are, with priceless works of art. It is intimately associated with Dante, Boccaccio and Machiavelli, as it is with Michelangelo and others of the world's greatest painters and sculptors, and owes much to the generosity of the Medici family.

BUILDINGS AND INSTITUTIONS. The buildings include the great Duomo or cathedral, with its towering dome, in which Savonarola preached, and adjacent to it are the campanile by Giotto and the Baptistry with its wonderful bronze gates. In the church of San Lorenzo are Michelangelo's statues of Day and Night. This church was the burial place of the Medicis. Many sons of Florence lie in Santa Croce, the city's mausoleum. Other churches include the Annunciation, San Spirito, Santa Maria Novella, Santa Maria del Carmine, San Michele

and San Miniato. Of the many palaces that of the Medici is used for public purposes. In the Pitti and the Uffizi palaces are two of the greatest collections of pictures in the world.

Another collection is in the Academy. The Strozzi and the Corsini palaces may also be mentioned. Florence contains four great libraries, each rich in books and manuscripts of immense value. One is the national library and another, the Laurentian, was once the library of the Medici.

Other buildings that may be mentioned are the Palazzo Vecchio and the Bargello. The hall of Del Lanza contains Benvenuto Cellini's Perseus. In the monastery of S. Mark, associated with Savonarola, are frescoes by Fra Angelico. The Ponte Vecchio, immortalised by Dante, still crosses the river and there are several modern bridges. There are remains of the old Roman city in the shape of an amphitheatre and baths. The university was founded in 1224.

The walls of Florence have been pulled down and modern suburbs erected beyond the old city. There are some industries, including shipping along the river, but the city is chiefly a centre of culture. Art students study here and it is a centre for tourists.

HISTORY. Florence was a Roman city and later a town in the district called Tuscany. As the citizens became rich by trading, they began to rule over the people around them, and after 1250 Florence was an independent and powerful city. It was disturbed by the struggle between the Guelphs and Ghibellines, but after a time the former gained the upper hand. Great prosperity followed and soon Florence was ruling over most of Tuscany, whilst, by conquering Pisa in 1406, her traders were in possession of that seaport.

During these years the citizens of the republic had provided themselves with a constitution, under which the city was governed, which lasted until the 15th century, when the rich family of the Medici (*q.v.*) became masters of Florence. Their wealth and influence helped them to maintain this position, although there were continual risings against them and for some years they were in exile. The republic was restored in 1494, but in 1512 the Medicis returned and with Spanish help overthrew it. In 1569 Cosimo de' Medici made himself Grand Duke of Tuscany, and Florence remained the capital of the grand duchy until 1860, when it was included in the Kingdom of Italy. In 1737 the Medici family had become extinct and from then until 1860 Tuscany, with Florence, except for a short period during the Napoleonic Wars, was a possession of Austria. From 1865-71, Florence was made the capital of Italy. It has a broadcasting station (500.8 M.; 20 kW.). Pop. 277,600.

Florentium Another name for the rare element more usually called illinium (*q.v.*).

Flores Name of two islands. One is in the Azores, being the most westerly of the group. Santa Cruz is the capital. Near here Sir Richard Grenville, in the *Revenge* in 1591, fought his famous action with some Spanish ships. Pop. 8200.

The other Flores is in the Dutch East Indies. Situated south of Celebes, midway between Java and Timor, of which it is a dependency, it occupies 8870 sq. m. The surface of this island is hilly and there are volcanic peaks as high as 9000 ft. Cotton, rubber and ponies are raised by the Malays on

the coast and jungle produce by the inland Papuans. The capital is Laranuka. Pop. 250,000.

Floret In botany, the small flowers forming the inflorescence of composite plants. The florets are arranged upon a flattened or convex disc surrounded by an involucre of bracts, and may be all alike, as in the dandelion, or different in form and colour, as in the daisy.

Florida State of the United States. In the extreme S.E. of the country, it consists mainly of a peninsula, between the Atlantic Ocean and the Gulf of Mexico. It covers 58,666 sq. m. and Tallahassee is the capital, although Jacksonville and Tampa are much larger. Agriculture is the chief industry, and rice, cotton, tobacco and tropical fruits are grown. Much of the state is forest land and the timber reserves are valuable. There are also fisheries and along the extensive coastline are many watering places including Miami, the largest city in the state. In the south is the swampy region called the Everglades and the great lake Okechobee.

Florida was discovered on May 27, 1513, by a Spanish seaman. In 1763 it was handed over to Britain, but in 1781 was returned to Spain. In 1819 it was bought by the United States, becoming a state in 1845. It is governed by a legislature of two houses and sends four representatives to the House of Representatives at Washington. Pop. (1930) 1,468,211, about a third of whom are negroes.

Florida Strait separates Florida from Cuba and the Bahamas; it is 300 m. long. Part of the Gulf of Mexico is called **Florida Bay**. **Florida Keys** are reefs off the south coast.

Florin Name of a silver coin. It originated in Florence, where a gold florin was struck in 1252. Other states coined florins, and in 1313 one was coined in England, this being a gold florin for 6s. It was soon withdrawn. In England the silver florin worth 2s. was introduced in 1849 and has since been in general use. A double florin is occasionally seen. In the Netherlands the silver florin has become the guilder.

Flotilla Name, meaning little fleet, given to a group of destroyers or submarines under a single command. Other small warships are also organised in flotillas. Destroyers in the British Navy are now grouped in flotillas of eight and the one which carries the captain, or commander, is called the flotilla leader.

Flounder Small flatfish (*pleuronectes flesus*) allied to the plaice. It is also called the fluke. It inhabits N. European coasts from the British Channel to Iceland, dwelling in river waters and descending to the sea to breed. It rarely exceeds 12 in. in length and 1½ lb. in weight. In America, various larger flatfish are called flounders.

Flour Term denoting especially the ground contents of the wheat seed. Similar meals from other grasses and from non-cereal plants usually bear qualifying or variant names, e.g., cornflour, oatmeal and arrowroot. The wheat kernel, which is nine-tenths of the seed, the remainder being skin and germ, consists of starchy matters (73.5 per cent.), gluten and other proteins (11 per cent.), fats and minerals (3.5 per cent) and water (12 per cent.). Besides its use in breadmaking, flour is used in several industries, calico printing, etc.

Wheat was formerly ground by hand and later in a mill between great stones, operated by wind or water, hence the name flour miller. Steam power was first employed in 1784, and in 1837 iron rollers were introduced in the place of mill stones and it is now prepared in great roller mills. A bag of flour consists of 110 lb. See WHEAT.

Flower Part of a plant containing the reproductive organs. It is composed, in its most complete form, of four distinct whorls of modified leaves. (1) The outer whorl or calyx, which forms the unopened bud, consists of sepals, usually green. (2) The corolla consists of petals, often coloured and sometimes forming a tube, their length, form and odour being adapted to assist insect fertilisation; sometimes, as in the crocus, sepals and petals are alike, and together form a perianth. (3) The stamens, which bear pollen grains, or male cells, in anthers, mounted on filaments. (4) The pistils, in which ovules, or female cells, in ovaries are surmounted by stigma mounted on styles. Sepals, petals or both are absent in some flowers, but stamens and pistils are essential to reproduction, although in some cases, e.g., the willow, each plant bears flowers of one sex only.

What is known as the language of flowers is the attribution of certain sentiments to certain flowers according to a pre-arranged code. In the 19th century booklets expounding these were popular in England.

Fluke Order of sucker-bearing parasitic worms, whose cysts resemble flukes or flounders. The common or liver fluke, *fasciola hepatica*, passes its adult life in the livers of sheep, producing an incurable rot. The eggs, passing out in the dung, hatch into embryos which penetrate a freshwater snail, *limnaea truncatula*. After further development, they leave the snail and attach themselves to grass, forming cysts which, when swallowed by sheep repeat the life history. Another fluke causes the human disease bilharziosis.

Fluorine Gaseous element. It occurs in the minerals fluorspar and cryolite, also in bone and the enamel of teeth. It is greenish in colour, and has a powerful action on all metals and most other substances. Its principal compound is hydrofluoric acid. It was first isolated in 1886. Its atomic weight is 19, atomic number 9 and symbol F.

Fluorspar Mineral consisting of fluorine and calcium. It occurs in veins or lodes and is often associated with lead ore. It is either colourless, or yellow, blue, green or violet in colour and is used as a flux, an etching agent, or for making cheap jewellery. In Derbyshire it is known as Blue-John and is used for ornaments.

Flushing Seaport and watering place of the Netherlands. It stands at the mouth of the Schelde, on the Island of Walcheren. Its chief importance is as a port for cross-channel services. There are ship-building yards and in former days the place was a station of the Dutch Navy. Pop. 21,600.

Flute Musical wind instrument consisting of a cylindrical tube of metal or wood. Into this the player blows through a hole near the top. Other holes, stopped by the fingers, or keys worked by the fingers, vary the air pressure and so make music.

Fluting In architecture the parallel channels or grooves on a column. They are separated from each other by fillets.

In Greek architecture definite laws governed the number and depths of the fluting. On the Doric columns there were 20 shallow elliptical flutes and on the Ionic the flutes were semicircular and 24 in number.

Flux Metallurgical term for a substance which assists in the reduction of an ore to the metallic state. The flux is added to the charge of ore for the purpose of combining with the earthy matter present and forming a fusible compound, or slag. The principal fluxes are carbonate of soda, which forms a slag with silica; borax which combines with lime and iron oxides; oxidising agents such as nitre and litharge and reducing agents such as charcoal.

Fly Name widely used, with or without prefix, for the winged state of many insects of various orders. Apart from butterflies, dragon flies, may flies and caddis flies, they pertain mostly to the two-winged order, *Diptera*, and include crane flies, house flies, bot flies, mosquitos, tsetse flies, etc. The mouth parts form a proboscis for piercing and sucking. Some flies are blood-suckers; many others owe their troublesome character to their destructive maggot stage; in some the larvae are parasitic, in some aquatic. Of widespread importance are the Hessian fly, forest fly, horse fly and window fly. The cosmopolitan house fly, *Musca domestica*, is a disease carrier, and because of its rapid breeding under insanitary conditions, a dangerous pest. See *DIPTERA*.

Flycatcher Large family of small insectivorous perching birds. They pursue their prey on the wing, and abound in the tropical regions of the world. The spotted fly-catcher, *Muscicapa grisola*, is a summer visitant to Britain. The pied, *M. atricapilla*, which arrives in spring is found in woods. The paradise fly-catchers of E. Asia have brilliant plumage.

Fly Fishing Form of fishing in which flies, usually artificial, are used as bait. These are made to look as much like a real fly as possible. They may be used in two ways. In dry fly fishing the fly floats on the surface of the water; in wet fly fishing it is immersed. The casting or throwing of the fly is important. Trout are usually fished with the fly. The Fly Fishers Club is at 36 Piccadilly, London, W.1.

Flying Boat Large seaplane having a boat-shaped body which gives it buoyancy on the water and affords space for the pilot, passengers and cargo. As in the ordinary seaplane its engine and airscrew are placed high up on the boat out of reach of the spray. Flying boats are specially adapted for coast work and for long distances over seas. The German Dornier "X" has 12 engines and carries over 100 passengers, as well as a light cargo.

In Great Britain the air ministry has several squadrons of flying boats, examples being the Southampton and the Iris. In 1931 two new boats, having a cruising speed of 100 m. an hour, were tested by making flights to Egypt and back.

Flying Buttress Form of external buttress, characteristic of Gothic architecture. In form a half arch, it was used to join the outer buttress with the wall of the nave, thus resisting the thrust of the central part of the roof, and was usually built in stages and finished with pinnacles.

Flying Corps Royal. British organisation for air fighting which existed from 1912 to 1918. It was formed, when air warfare became a possibility, as a branch of the army. In 1914 its strength was about 2000 men, but it expanded enormously during the World War, when it took part in the fighting in all areas of military operations and, in co-operation with the navy, was responsible for the defence of Britain from air attacks. In April, 1918, it became part of the Royal Air Force.

Flying Dutchman Name given to a phantom ship. It was said to haunt the southern coasts of Africa and sailors believed that seeing it meant impending disaster. It was said to be a doomed ship moving continuously over the seas as a punishment for acts of cruelty committed by the captain, Vanderdecken, and the crew. Wagner wrote an opera on the subject, and Douglas Jerrold a play.

Flying Fish Name denoting two genera of tropical and subtropical marine fishes. The two genera include the flying herrings, *Eurostichus*, and flying gurnards, *Dactylopterus*. Their long pectoral fins, acting when distended as parachutes rather than as wings, sustain them in the air against the wind, sometimes for 500 ft. They fly to escape the attacks of coryphæna and other predatory fishes.

Flying Fox Popular name of a genus of night-flying fruit-bats (*Pteropus*). Occupying the tropics of the old world, the largest is the Javanese kalong, *P. edulis*, which possesses a wing-spread of 1 or 5 ft.; others, in India and Queensland, inflict enormous damage to gardens. They slumber head downward, clinging by thousands to a single tree.

Flying Lemur See *LEMUR*.

Flying Squid Widespread genus of cuttle fishes (*Onmyctophes*). They are especially common in the warmer seas of the world. Long and tapering, they leap, by means of their large lateral fins, high out of the water, sometimes falling on the decks of ships. The sea arrow (*O. sagittatus*), frequent in Scottish firths, is a common cod bait off Newfoundland, and an important food of sperm whales. The fish may be as much as 4 ft. in length.

Flying Squirrel See *SQUIRREL*.

Flywheel Large, heavy wheel mounted on a shaft. Its function is to equalise the motion of machinery. In a single cylinder engine a fly wheel is mounted on the crank shaft so that its momentum assists the crank over the dead centres when the piston is at either end of its stroke; it also tends to give a more uniform motion. Some fly wheels are of great size, up to 24 ft. in diameter and 120 tons in weight.

For use on motor vehicles a "fluid" flywheel has been invented. It consists of two main parts made of aluminium, one of which forms the driving member and the other the driven member. With it a driver can start his car from rest and drive on the level, with or without traffic checks, without using the clutch pedal or the gear lever to bring the car to rest with the engine still running.

Foch Ferdinand. French soldier. Born at Tarbes, Oct. 2, 1851, he was the son of a civil servant. On the outbreak of war in

1870 he joined the army. In 1878 he was made a captain of artillery and was soon engaged on staff work. In 1894 he was appointed Professor of Military History at the Staff College, and there he made a reputation by his lectures, which have been translated into English as *The Conduct of War* and *The Principles of War*. In 1901 he was given command of a regiment and in 1905 became chief of the staff of an army corps. From 1907-11 he was head of the staff college (*École de Guerre*); in 1911 he was selected to command a division and in 1912 an army corps.

When the Great War began Foch was in command of the 20th corps at Nancy and helped to defend that city until he was put at the head of the 9th army, which, under him, had a great share in the victory of the Marne (Sept., 1914). He then exercised general control over a group of armies and was prominent in directing the operations on the Somme in July, 1916. A little later, in Sept., being 65 years of age, he retired, but in May, 1917, returned as chief of the staff to the new generalissimo Pétain. In the following March, after the British disaster of that month, he was appointed generalissimo of all the armies on the western front, French, British, American and Belgian. In that capacity he controlled the movements of the final advance and received the German envoys when an armistice was requested. In 1918 he was made a marshal and later in the year was declared to have "deserved well of his country."

Foch was a prominent figure in the negotiations for peace, but gradually he retired from public life. He wrote a book on the war, published just before his death, March 20, 1929. He was buried in the Invalides and there are memorials to him in several places.

Fochabers Village of Morayshire. It stands on the Spey, 8 m. from Elgin, and is visited for the fishing and scenery around. Near is Gordon Castle, the seat of the Duke of Richmond.

Fog Atmospheric condition of low lying cloud or thick mist. It is due to the presence of dust particles around which is deposited a film of water when the temperature falls suddenly below dew point. These drops, in the absence of wind, may remain in suspension for a long time and thus form the white fogs of the countryside and the dense black fogs of large towns where sooty particles predominate. Over the sea a current of warm air passing over a cooler layer, or over icy waters, causes condensation to occur resulting in thick fogs, as off Newfoundland.

Foggia City of Italy. It is a railway junction, 78 m. from Naples, and a commercial and agricultural town. The chief building is the cathedral. Pop. 91,975.

Foghorn Apparatus for producing a loud noise as a warning at sea during a fog or as a signal on shore. Many types are in use, from the simple mouth foghorn to those worked by hand or the powerful sirens worked by compressed air. Coast fog signals vary much in character from reedhorns to large sirens installed on dangerous parts of the coast. Sailing vessels and those in tow are required to sound their foghorns at intervals of one minute during a fog.

Föhn Dry warm wind experienced in the eastern Alps. It blows down the mountain valleys, its warmth being due to the increasing pressure and consequent rise in

temperature as it descends from a high altitude. As the snow rapidly melts when the Föhn is blowing, it is of great value to agriculture in these regions.

Foil Thin sheet metal. It is obtained by rolling certain malleable metals, especially tin, aluminium, copper and silver. Tinfoil may vary in thickness up to 1/100th of an inch and is used extensively as a wrapping material for tobacco, chocolates and foodstuffs, or as box linings and for electrical apparatus. Aluminium foil is also used for wrapping, and tinsel, a tin or copper alloy, is employed by jewellers. Copper foil in varying thicknesses is used in repoussé and other metal work.

The word is also the name given to a light sword used in fencing. This has a guard on the hilt and a flexible four sided steel blade, the point of which is protected by a button.

Fokker Antoine Herman Gerard. Dutch engineer. Born at Kediri, Dutch East Indies, April 6, 1890, he was educated at Haarlem, Holland, and at the age of 20 went to Germany, where he started his aeronautical career, becoming known as a pioneer of aviation. He put up factories and built aeroplanes that were used by the German army in the Great War, after which he erected the Fokker Aircraft works in Holland and other factories in Madrid and New Jersey.

Foleshill District of Warwickshire. It is 3 m. from Coventry, of which it is practically a suburb. It is the centre of a rural district with a population of over 33,000.

Folio Book of the largest size, comprising sheets of paper folded once. If folded again the sheets would become quarto, and so on. The term designates also the numbered page of a book or manuscript. Shakespeare's works were printed in folio volumes; hence the phrase, *first folio*. In law writing a folio comprises 72 words, in parliamentary and chancery documents 90, in the U.S.A. 100.

Folkestone Borough, seaport and watering place of Kent. It stands on the English Channel, 71 m. from London, with stations on the S. Ry. There is a large harbour for cross channel traffic and near it is the fish market.

The new town has been built on the cliffs. In front are the Leas, a fine promenade about 2 m. long, along which are hotels and houses. Radnor Park is an open space and near the town is the Warren, a large expanse of open land. Races are held here regularly and an annual cricket festival is held in September. A road of remembrance leading to the harbour forms the town's war memorial. Much of the land belongs to the Earl of Radnor, whose eldest son is called Viscount Folkestone. Pop. (1931) 35,890.

Folk-dancing Dancing uninfluenced by urban or professional tendencies. The term has loosely become synonymous with country-dancing. It may be classed under two heads, (1) social, when it is danced purely as a pastime by all; (2) ceremonial, when performed by selected performers to mark a definite occasion.

Folkland In early England land held from the king according to the custom of the folk or people. Sometimes the king made grants of land in a book or charter and this was called bocland. At one time it was believed that folkland was common land, but scholars no longer hold this view.

Folklore Traditional learning of backward people. The term was invented in 1846 by W. J. Thoms to designate popular antiquities and in 1878 the Folklore Society was established in London. Folklore deals with the beliefs and customs, stories and songs, art and ritual, of early and uncultured people, and much work has been done in tracing their origins, resemblances and distribution. The most elaborate work of this kind is *The Golden Bough* of Sir James Frazer.

Folk-Song Vocal and instrumental music originating among the uncultured classes. It is usually based on local legends or incidents of common life, and may comprise a simple melody in one or other of the diatonic modes. The English Folk-Song Society, founded in 1898, has recorded several thousand authentic folk-songs.

Folly In a particular sense a building erected for no definite purpose. There are several examples in England, such as Allen's Folly, also called Sham Castle, near Bath, built in 1760 by Ralph Allen.

The Follies was the name taken by a group of burlesque actors, under H. G. Pellissier, who were very successful when they appeared in London between 1907 and 1912.

Fomentation Application of warmth to the body's surface. It may be employed to soothe the pain or to hasten the formation of pus in localised inflammations. For hot fomentations, flannel, lint, and similar materials are wrung out in hot water and applied under protective waterproof coverings; medicaments, e.g., turpentine and laudanum, may assist. Dry fomentations comprise warmed flannels or bags of warmed salt or bran.

Font Basin used in a church for the ceremony of baptism. It is constructed usually of stone or marble and is sometimes placed in a special part of the building. In the early Christian churches it was in a separate baptistry, octagonal or circular in form, adjoining the basilica, the font taking the form of a tank for immersion. The earliest of these is the Baptistry of Constantine in Rome. There are fine Norman fonts in some of the old churches of England.

Fontainebleau Town and forest of France. The town is 37 m. from Paris and quite near the Seine. There are some industries, but the interest of the place centres in the magnificent palace, which was built by Francis I. and improved and beautified by later kings. In it Napoleon abdicated in 1814. Externally it is a wonderful piece of architecture, whilst internally are some magnificent apartments and priceless paintings, tapestries and other works of art. The gardens also are beautiful.

The Forest of Fontainebleau, a popular pleasure resort, covers over 40,000 acres, and is a region of great natural loveliness.

Fontenoy Village of Belgium. It is about 5 m. from Tournai and is famous for the battle fought here on May 11, 1745. The French under Marshal Saxe were attacked by a British force under the Duke of Cumberland, who had also Hanoverian and Dutch soldiers in his army. After a stubborn fight the British and their allies were forced to retreat, their square having been broken. A brigade of Irish contributed much to the French success.

Fontevrault Town of France. It is 10 m. from Saumur and being part of Anjou, was long an English possession. A great Benedictine abbey existed from 1100 to about 1800. In its church are the tombs of Henry II., Richard I. and Matilda, the wife of the one and the mother of the other. These were only discovered when the edifice was being restored in 1910. Pop. 2300.

Fonthill Village of Wiltshire. It is near Hindon and is known for its association with William Beckford. Here, on the site of an abbey, he built a magnificent house. It was pulled down, but in the 19th century the 2nd Marquess of Westminster built another, which has now passed out of his family.

Foochow Port of China. It stands on the River Min, about 36 m. from its mouth, and is a treaty port. On the Island of Nan-tai is the European quarter, which is reached by a bridge, remarkable for its age and construction. The industries are chiefly connected with shipping, for which there are extensive docks and there is a dockyard for the Chinese navy. The older part of the city is still surrounded by walls. Foochow is the capital of the province of Fukien. Pop. 314,900.

Food That which nourishes the body of man and other members of the animal world. Each animal, using the word to include all forms of animal life, e.g., birds, fish and insects, has its own kind of food, much of it consisting of the bodies of animals weaker than itself.

Man's food may be divided into two classes: the flesh of animals and the produce of the soil. Certain animals are eaten, whilst certain others are not, the reason for the distinction being not always clear, although generally man does not eat meat-eating animals or birds.

To-day, except for certain fruits, nearly all the food eaten by man is cooked or prepared in some way. Artificial foods, as they are called, have grown greatly in favour and some think modern society owes some of its ailments to this fact.

The nature of man's food differs to a considerable extent according to the climate. In general, those who live in cold latitudes require more food, especially that containing fat, than do those in warmer regions.

The invention of refrigerators has enabled meat to be kept for long periods. Improved methods of treating the soil, especially with artificial fertilizers, and new strains of plants have increased output. Wheat, a staple food in the west, can now be grown in regions hitherto regarded as too cold for it and in other ways great additions have been made to the food resources, actual and potential, of the world, and have thus lessened the danger of famine.

So far has this gone that, in 1931, an international conference was held with a view to reducing the acreage under wheat, and it is much the same with other primary foods.

DIET. The essentials of a proper diet are that it should provide for growth and the replacement of waste, that it should furnish the heat and energy required by the body, and also a measure of stimulation to metabolism and to the functions of the alimentary tract. Analysis shows that foods are made up of certain constituents, namely, proteins or nitrogenous substances, carbohydrates, fats, salts, vitamins and water.

The proteins, of which white of egg and lean meat are examples, together with mineral matter and water, make good the loss of tissue due to the wear and tear of living; they also go to the making of the secretions of the body. The daily amount of tissue waste in an adult person is not very great, and hard work makes no appreciable difference, because energy is derived from other kinds of foodstuffs. A growing person, on the other hand, requires a liberal allowance of proteins. These substances are contained in flesh, fish and fowl and also in wheat and other vegetable foods, but those of animal origin have, in addition, a certain dynamic quality which explains the craving for animal food in cold climates and the lessened inclination for it among dwellers in temperate climes during the hotter weather. Another advantage of flesh foods is that they present their proteins in a concentrated and easily digested form.

Proteins also furnish a certain amount of heat and energy, but the proper sources of most of our requirements of these are carbohydrates and fats. If more protein is taken than is required for growth and repair, more energy will certainly be provided, but the body will be taxed to dispose of much that is not otherwise utilised; there will be an excess of ash, as it were, for the fuel consumed, whereas fats and carbohydrates produce no ash.

The amount of heat, and incidentally of energy, since heat and energy are convertible into one another, furnished to the body by fixed amounts of protein, fat and carbohydrate, can be estimated by chemical processes. The amount of heat is calculated according to a unit known as a calorie or, as is usual when dealing with foodstuffs, a large, or kilo-calorie (=1000 calories).

The mineral matter in foodstuffs include salts of iron, calcium, magnesium, sodium and potassium, which are necessary in tissue building or, in various ways, in the chemical processes which go on in the body. Iron is a necessary constituent of the red blood corpuscles, for example, while sodium chloride is a constituent of blood, etc., and the source of hydrochloric acid in the gastric juice.

REGULATIONS AND CONTROL. In Great Britain and other civilised countries steps are taken to see that the food sold in the shops is pure. Laws were passed forbidding the sale of diseased and unsound food, but with the great increase in the sale of manufactured foods, something more was necessary. Other laws, therefore, lay down that such foods as cream and margarine must be of a certain standard of purity; in other words, food must not be mixed beyond certain prescribed percentages, with something of inferior quality. A system of marking has been ordered so that people know what they are buying. These laws are actively enforced in each county, city or other district by inspectors who have power to visit shops and to take samples, which are analysed and, if found to be adulterated, their vendors are prosecuted. In Great Britain the system of marking foods has been used since the Great War for quite another purpose, that of encouraging the sale of Empire produce.

The World War brought about a great shortage of food and in the belligerent countries steps were taken to ration it. In Germany and Austria the shortage was very acute and rationing was introduced early in the struggle. In 1917 a system of food control was set up in Great Britain. The amount of certain essential foodstuffs, such as meat, sugar and butter was

limited, each person being provided with a card, without which these could not be bought. The system was under a food controller who had representatives in every town. The office became the Ministry of Food and lasted until March, 1921. The shortage was most acute in the early part of 1918 and was partly due to the action of German submarines.

In a modified way the control over food was soon renewed. Complaints of high prices charged for food were so prevalent and the disparity between the price obtained by the producer and that charged to the consumer was so marked, that a food council was set up to investigate the reasons for what appeared to be abnormal rises in prices for foodstuffs.

Fool In olden days a jester, but now a person without sense. Kings and noblemen had fools at their courts who were expected to amuse them and their guests by their tricks and sayings. The fool wore a special dress and carried a stick with a bladder at the end of it. There are many references to fools of this kind in literature, instances being Touchstone in Shakespeare's *As You Like It* and the fool in *Iranhoc*. The keeping of fools died out in the 17th century. In the Middle Ages one of the recognised feasts was called the Feast of Fools.

Foolscap Conical cap, or hood, curved like a cockscorn and decorated with bells, formerly worn by fools or jesters. The name is also used for folio paper, 13 by 17 in., sometimes slightly smaller, for which the old paper makers used a watermark of a fool's cap and bells.

Foot That portion of the lower limb below the ankle joint. It contains 26 bones, 7 forming the tarsus, corresponding to the wrist, 5 the metatarsus, or sole of the foot, corresponding to the palm, and 14 are phalanges. The tarsus includes the calcaneum or heel bone and the astragalus, supporting the leg bone. The foot is arched between heel and metatarsus. Club foot is a deformity which prevents heel and toe from simultaneous contact with the ground. See **FLAT FOOT**.

• **FEET, SORE** The causes are corns, bunions, blisters, in-growing nails, falling arch, etc., all of which can be relieved by proper care and attention.

Corns—horny growths occurring on the toes or soles of the feet—should be removed by the application of a plaster, or by soaking in hot water with bath salts or common washing soda, and then paring with a sharp instrument.

Bunions (inflamed swelling of the bursa over the large joint of the big toe) may be relieved by applying hot fomentations. Bunions are caused by wearing tight, pointed shoes; the inner side of the shoe should be straight, allowing the big toe to lie in its natural position.

Blisters should be punctured near the edge with a sharp, sterilised instrument such as a needle, and when the fluid has run out boracic ointment or lint should be applied and the part covered with a dressing. Feet which blister easily may be hardened by adding methylated spirits to the water in which they are bathed.

In-growing Toe-nails should be treated by a chiropodist if they are bad, but slight tendency may be corrected by cutting the nails straight across, and then cutting a small v from the centre.

Falling Arch, engendered by too much standing—a doctor must be consulted and a support worn inside the shoe.

All foot soreness and tiredness is relieved by frequent bathing in hot water with bath salts, resting with the feet up, fresh stockings daily, the wearing of sensible shoes which fit the foot, are not too heavy and have a good sole and moderate heel. Boracic powder shaken inside the sock or stocking is found to be beneficial where much walking is necessary. *See also FLAT FOOT.*

Foot-and-Mouth Disease

Virulent infectious malady affecting domesticated animals. Its usual victims are cattle, sheep, goats and pigs, but it is communicable to man. Fever is accompanied by rapid spread of eruptions in mouth and feet, thick discharge from the lips, disturbance in abdominal organs and milk supply and a greater or lesser degree of lameness. It is introduced into Britain at intervals by imported animals. The Ministry of Agriculture has extensive powers in cases of this kind, and as soon as an outbreak occurs all movement of animals in the affected area is forbidden. Sometimes they are slaughtered, in which case compensation is paid.

Football Popular ball game. This old game was at first played by two teams of men, without any definite rules regulating the numbers engaged, the size of the ground or other matters. Each side tried by sheer force to get the ball past its adversaries. This is the game still played once a year at Ashbourne and elsewhere. The public schools each played it according to their own rules, survivals being the wall and field games at Eton and the games at Winchester and Harrow.

In the 19th century the game was organised and rules drawn up. Clubs came into existence and soon football was played in practically every boy's school in the land. Of its two popular forms the first is the Association game. This is played with a round ball by eleven players on each side. There are goalkeeper, two backs, three half-backs and five forwards. Except by the goalkeeper the hands must not be used, the ball being only propelled by the feet or head. Each match is decided by the number of goals scored, these being obtained by kicking the ball between the goal posts. A game usually lasts for 90 minutes.

Association Football, or soccer, owes its name to the fact that in 1863 a Football Association was formed to draw up a set of rules. A challenge cup was presented for competition between the clubs in 1871 and since then the matches for the Association Cup have been amongst the most popular sporting events in the land. There are also Scottish, Irish and Welsh Associations, each of which offers a cup, as do many other local associations. The Football Association at 22 Lancaster Gate, London, W., is the controlling authority in England and acts in unison with the other associations in revising the rules.

The first players were all amateurs, mainly old boys from the public schools, but the popularity of the game spread to all classes and soon professionalism was introduced, this being legalised in 1885. Then came the introduction of the league system, now the mainstay of the game. In 1888 a league was formed, and each club in it must play two matches in the season with every other club therein. Points were awarded and the championship of the league became almost as great an honour as the holding of the Association Cup. The great professional clubs such as Aston Villa,

Blackburn Rovers and Preston North End, were members of the original league and their matches every Saturday attracted vast crowds.

The league system spread rapidly. The first, or original, league was divided into divisions with a system by which a club could rise from one to another. Leagues were founded all over the country and there are now scores of them in England, Scotland, Ireland and Wales. The game is still played by amateurs and at one or two of the public schools, while the universities of Oxford and Cambridge meet in an annual encounter. The Football Association offers a cup for amateur clubs and the best amateur players form the Corinthians.

International matches are played between the four home countries, the players are usually professionals, but amateurs are not barred. There are also international matches between amateurs and between the national leagues. The game is played in France, Germany, Belgium and other countries, and is an event at the Olympic Games.

The second form of the game, **Rugby Football**, is a development of the original game as it was played at Rugby School. In 1823 William Webb Ellis picked up the ball and ran with it, and in 1841 this was recognised in the rules. Soon clubs were formed to play the game according to the Rugby rules. The oldest of these is the Blackheath Club, formed in 1860. The English Rugby Union then came into existence and similar unions were formed in the other countries.

Rugby is the chief winter game at most of the public schools. It is also very popular in most parts of England, as well as in South Wales and has been taken up in Scotland and Ireland. It has also spread to France and in New Zealand and South Africa is played with great keenness. It is strictly an amateur game.

Rugby is played with 15 players a side. Eight of these form the scrum, a survival of the original group of men striving to push the ball along as best they could. The other seven are two half-backs, four three-quarter backs and one full back. The ball is oval in shape and must be kicked above the bar, not under it in order to score a goal, which counts five points. Three points are given for a try, which is gained by grounding the ball on the opponent's back line and entitles the side gaining it to kick at the goal without interference.

International matches are played between the four home countries and, until 1930, with France. From time to time teams from South Africa and New Zealand come to Britain and British teams go overseas. A match is played each year between Oxford and Cambridge. The rules are revised periodically by an international board representing the four Rugby Unions. The English Union has its headquarters and ground at Twickenham; the Scottish Union has a ground at Murrayfield, Edinburgh.

A third form of football is the **Northern Union game**. This came into existence in 1895 when the Rugby Union refused to allow professionalism. Some Rugby clubs in Lancashire and Yorkshire then broke away, formed the Northern Union and began to play a slightly different kind of game. The number of players was reduced from 15 to 13 and other changes made for a more open and spectacular game. The Northern Union has adopted the league system. This game is much played in Australia.

A fourth kind of game is played in Ireland.

In this there are 13 players a side and a round ball is used. This, however, can be handled, but must not be carried. A score is made if the ball is sent either over or under the bar of the goal posts.

Foote Samuel. English actor and dramatist. Born at Truro in 1720, he was educated at Oxford and studied law, but soon abandoned this profession for the stage, making his debut at the Haymarket Theatre, London, in 1744. In 1747 he gave, at the same theatre, a series of entertainments which were very popular, in which he caricatured people of the day. In all the many comedies that he wrote and in which he performed, caricature of some living person was an outstanding feature. In 1766 he lost a leg and the Duke of Westminster, as compensation, permitted him to rebuild the Haymarket theatre. He continued to act there until he sold the theatre ten months before his death on Oct. 21, 1777.

Footpath Narrow way for pedestrians only. Right of way over a footpath may be established by grant of the freeholder, or by user. In the latter case, if the public have had uninterrupted use of the path for 20 years, a right of way is established, the law presuming an ancient grant to have been in existence before that time. The owner of land who permits the public to use a path over it, but does not wish it to become a permanent right of way, can avoid it by closing the path once a year. **The Commons and Footpaths Preservation Society** in London closely watches reported encroachments on public rights of way. There is also a Peak District and Northern Counties Footpaths Preservation Society.

Forbes Town of New South Wales. It is 200 m. to the west of Sydney, and is the centre of a district wherein sheep are reared. Pop. 4650.

Forbes Archibald. Scottish war correspondent. Born April 17, 1838, he was educated at Aberdeen University and served in the Royal Dragoons. During the Franco-Prussian War he acted as correspondent of *The Morning Advertiser* and then of *The Daily News*. He also saw service as a war correspondent in Spain during the Carlist wars, in the Russo-Turkish war, in Afghanistan and in S. Africa. He wrote on his campaigns and also a volume, *Memories and Studies of War and Peace*. He died March 30, 1900.

Forbes George William. New Zealand politician. Born at Lyttelton in 1868, he was educated at Christchurch and became a farmer. In 1908 he was elected to the House of Representatives and in 1928 was made Minister of Lands and Agriculture under Sir Joseph Ward. He acted as premier during Sir Joseph's illness and succeeded him in that office in May, 1930, becoming also Minister of Finance. Later in the year he attended the Imperial Conference in London.

Forbes Joan Rosita. English traveller and writer. Born Jan. 16, 1893, a daughter of H. J. Torr, of Morton Hall, Lincolnshire, she travelled extensively in Africa and other countries. In 1920 she was with the expedition to the Kufra Oasis in Libya. In 1922-23 she visited Asir and went with a cinema expedition through Abyssinia in 1924-25. She is the author of several novels and books of travel and adventure, including *The Jewel in the Lotus*, 1922; and *From Red Sea to Blue Nile*, 1925. She married

firstly, Col. Ronald Forbes and, secondly, Col. A. T. McGrath.

Forbes Stanhope Alexander. British artist. Born in Dublin, Nov. 18, 1857, he was educated at Dulwich and studied art. He won a reputation by his paintings of English rural life. "The Health of the Bride" is in the Tate Gallery, London. The "Kiah Sale" and "Forging the Anchor" are two of many popular works. In 1892 he was elected A.R.A. and in 1910 R.A.

Forbes-Robertson Sir Johnston. English actor. Born in London, Jan. 16, 1853, he was educated at the Charterhouse and Rouen and studied art at the Royal Academy Schools. He made his first stage appearance in 1874 at the Princess's Theatre, London, where he appeared as Castelar in *Mary, Queen of Scots*, but he first achieved success in 1876 in *Dan'l Druce*. In 1895 he played in *Romeo and Juliet* and increased his reputation by appearing in *The Passing of the Third Floor Back* and *The Light that Failed*. In 1913 he was knighted. Forbes-Robertson married the actress Gertrude Elliott and wrote *A Player under Three Reigns*, 1925.

Force Term in physics expressing that which produces or tends to produce motion, or a change of motion, in a body. Force is measured by the rate of change of momentum it produces, the unit of force being known as the dyne (g.v.). Work is the product of force.

Forcing Horticultural term for the art of accelerating the growth of plants. By this means many plants may be made to flower or fruit or produce stems and foliage out of their proper season. Forcing is dependent upon warmth and moisture. Warmth may be obtained by embedding potted plants in pits filled with fermenting material or by keeping them in a forcing house. In warm climates such as that of the Channel Islands or of Cornwall vegetables, fruit and flowers are forced under glass for the English market.

Ford Edward Onslow. English sculptor. Born at Islington, July 27, 1852, he studied at Antwerp and Munich and at an early age attracted attention with his busts and statues. His group statuary is represented by the Gordon Memorial in London and the Shelley Memorial at Oxford; other works of his are the Gladstone statue in London, the Huxley statue in the National History Museum, London, and a number of portrait busts of well-known people, all showing great skill in modelling. He was elected A.R.A. in 1888 and R.A. in 1895. He died in London, Dec. 23, 1901.

Ford Henry. American manufacturer. Born at Greenfield, Michigan, July 30, 1863, he early became interested in mechanics and gained experience in engineering works at Detroit and elsewhere, experimenting meanwhile in motor car manufacture. In 1903 he started the business that grew into the Ford Motor Co., and thus became the largest maker of motor cars in the world. In 1914 he instituted a scheme of profit sharing. The Ford works are excellently organised, and to eliminate waste of every kind, Ford owns his own iron and coal mines, timber forests, railways, etc. Factories have been opened at Manchester and Cork, and extensive works begun at Dagenham. Ford is the author of *My Life and Work*, 1922, *To-day and To-morrow*, 1926, *My Philosophy of Industry*, 1929.

Ford John. English dramatist. Born in Devon, April 17, 1586, he studied at Oxford. For many years he was occupied in writing for the stage. In 1626 appeared *'Tis Pity she's a Whore*, a powerful tragedy, which was followed by *The Broken Heart* and *Love's Sacrifice*. In 1634 he published *Perkin Warbeck*, a historical drama. He also wrote many plays in collaboration with Dekker and others. His last play was *The Lady's Trial*, 1639. The date of his death is not known.

Fordingbridge Town of Hampshire. It stands on the River Avon, 14 m. from Salisbury and 96 m. from London by the S. Rly. It has an agricultural trade and was once a market town. Pop. 3400.

Fordwich Village of Kent. It is on the River Stour, 2 m. from Canterbury and in the Middle Ages was an important port, being a member of the Cinque Port of Sandwich. It decayed owing to the closing of the channel of the Stour and for other reasons. It was a corporate town until 1884. Pop. 250.

Forecastle Front part of a ship, usually occupied by the crew. It owes its name to the fact that the fighting ships of the Middle Ages had an erection in front like a castle.

Foreclosure Act of taking possession of mortgaged property when principal or interest is unpaid. By English law a mortgagee can foreclose, i.e., take over the house or land, if the interest is in arrears longer than a stated time. He can also foreclose if, the required notice having been given, the principal is not repaid. The right of foreclosure, however, is limited to some extent by the Rent Restriction Acts.

Foreign Legion Corps of the French army. It is recruited largely from foreigners, men who wish for some reason to hide their identity or to seek adventure. No questions are asked about their antecedents. The headquarters are at Sidi Bel-Abbes, in Oran, and the Legion, which is officered by Frenchmen, is quartered in various parts of Algeria. Trained very rigorously and cut off from European life, the men have won a great reputation as fighters, and did good service in the Great War when battalions were brought to France.

Foreign Office Department of the British Government. Its head is a secretary of state and a member of the cabinet, and it is responsible for all business with foreign countries; ambassadors and other representatives being under its control. The office in its present form dates from 1782. The secretary is assisted by two under-secretaries and a large staff. One of the under-secretaries is a politician, the other a civil servant. The department of overseas trade is a department of the Foreign Office, which has its headquarters in Downing Street, London.

Foreland Alternative name for a cape known by this name are in Kent. The North Foreland is about 3 m. from Margate and the South Foreland about the same distance from Dover. Both are formations of chalk and on each is a lighthouse. Foreland Point, also with a lighthouse, is near Lynton, on the north coast of Devon.

Foreshore Part of the seashore between high water and low

water marks at ordinary tides. Its extent varies with the amount of slope and the tidal height. Except when vested individually by grant, charter or prescription, the foreshore belongs to the crown, with public right of use for navigation or fishing. A right of passage to the foreshore does not necessarily lie over adjacent land.

Forest Word used originally for a tract of woodland wherein wild beasts lived. In Europe many of these were used by the kings for hunting, and forest laws were passed to prevent any interference with this sport. The history of England and France is full of references to the habit of the kings and nobles of hunting in the forests. Gradually the area under forest became less and less, until to-day, England has very few forests, the largest being the New Forest. France, Germany and other countries have more, while Scotland has extensive treeless areas called deer forests. There are also vast forest areas in Canada, India and other countries, used for the growth of timber and mostly the property of the state. The men who look after the forests are called foresters, rangers or verderers. See AFFORESTATION.

The Ancient Order of Foresters is the name of one of the largest of the friendly societies. Its headquarters are 17 Russell Square, London, W.C.1.

Forestalling Former equivalent of the modern profiteering (q.v.). It is the act of buying any merchandise or provisions on the way to market or before market hours, or dissuading persons from bringing them to that market, or of doing anything to enhance the price. This interference with public trade for personal profit was, until 1844, a statutory offence.

Forest Gate District of London. To the east of the city, it is in the boroughs of East Ham and West Ham. It is an industrial centre on the L.N.E. Rly., 6 m. from the city.

Forest Hill District of London. To the S.E. of the city, it is in the borough of Lewisham, 6 m. from London Bridge, on the S. Rly. Here is the Horniman Museum.

Forest Row Village of Sussex. It is 3 m. from East Grinstead, on the S. Rly. It is near Ashdown Forest, hence its name. Pop. 3300.

Forestry Art and practice of looking after the trees in forest areas. It must be distinguished from afforestation, which is the work of planting trees on un-forested land. With the enormous and increasing demands upon the world's timber supplies, the conservation of forests has become a matter of first importance, and many countries have set up departments to deal with it.

In Great Britain there is a forestry commission, set up in 1919, but its duties are mainly concerned with afforestation. It controls the crown woods, and its headquarters are at 22 Grosvenor Gardens, London, S.W. Since 1920 it has been responsible for planting 80,000 acres of new forest. The Government also maintains a board for research into forest products which has a laboratory at Princes Risborough. Forestry is a subject of study at the Imperial Forestry Institute, Oxford, under a professor, the students being trained for the forest services in India and other parts of the Empire. India has an important forestry

department, controlling some 250,000 sq. m. of forest, so also have Canada and many other countries.

During the Great War a forestry corps, recruited mainly from Canada, did good work in providing timber for military operations. The Women's Forestry Service was also established for the same purpose.

Forestry Commission

Department of the British Government. Its duties are primarily to manage existing state-owned forest lands, to promote reforestation and to supervise the timber production and supply in Great Britain. In 1932 the Commission had acquired over 724,000 acres of land, including former crown woods, and had planted over 185,000 acres. The commissioners are appointed every five years.

Forfar Burgh and county town of Angus, formerly called Forfarshire. It is 21 m. from Dundee, on the L.M.S. Rly., and is a railway junction. There are some manufactures. On a nearby hill the early kings of Scotland had a castle. Pop. (1931) 9660.

Forfarshire Former name of the Scottish county of Angus (q.v.).

Forfeiture Loss of lands or other property as a result of an offence against the law. In Great Britain, until 1890, it was the law that any person convicted of treason or felony forfeited his property to the crown. The history of the country until after the Jacobite rising of 1745 is full of instances of nobles and others who forfeited their lands.

To-day persons convicted of bringing goods into the country without paying duty on them are sometimes sentenced, in addition to the fine, to the loss or forfeiture of the goods. Leases can be forfeited if the tenant fails to carry out his undertakings, but courts of law do not allow this on trivial grounds.

Forgery In English law a serious crime. It is defined as making a false document, or material alteration therein, without authority; also counterfeiting a seal or die. The forging of documents, such as wills, deeds or bank notes is a felony and can be punished by penal servitude for life. The forging of documents of less importance does not come within the category of a felony, but is a misdemeanour for which the maximum penalty is imprisonment for two years.

Forget-Me-Not Various annual or perennial herbs, (*myosotis*). Native to temperate regions, the best known, the common *M. scorpioides*, has rather stout, flexible stems, and sky-blue flowers. The wood forget-me-not, *M. sylvatica*, has bright blue flowers; the Alpine sub-species is a dwarf. Ornamental garden varieties and exotic species from the Azores and elsewhere are very popular.

Forging Art of shaping metal. It is an ancient industry now principally practised on iron and steel which is heated until plastic, when it can be joined (welded), severed, bent or shaped by hammering with hand or power hammers, with or without shaped moulds.

Formaldehyde Simplest of the aldehydes, which are oxidation products of alcohols. The gas formic aldehyde (H.COH) is produced by passing methyl alcohol vapour over heated platinum. A 40 per cent. solution in water (formalin) is a

disinfectant, an antiseptic, and renders gelatine insoluble in water. In recent years formaldehyde has become of great importance in the manufacture of synthetic resins and plastic substances.

Formalin Trade name for a 40 per cent. solution in water of the organic gaseous compound known as formaldehyde. This is prepared by passing a mixture of methyl alcohol and air over heated platinum as a catalyst. It has a peculiar pungent odour and is used as a disinfectant and deodoriser, also as a hardening agent for photographic films.

Formby Urban district, market town and seaside resort of Lancashire. It is 7 m. from Southport, on the L.M.S. Rly. Pop. (1931) 7957.

Formic Acid Simplest of the fatty acids. It has the chemical formula H.COOH. First obtained from ants by distillation with water, it is now obtained by the distillation of sodium formate with a mineral acid. It has a pungent odour and a blistering effect upon the skin. It is used in dyeing and other technical processes.

Formosa, or Taiwan Island in the Pacific Ocean. It lies off the coast of China, from which it is separated by the Strait of Formosa. For long Formosa, the beautiful island, as the early European seamen called it, was a Chinese possession; it was ceded to Japan in 1895. It is 240 m. long and covers 13,800 sq. m. The eastern part is mountainous and very little cultivated; the western part is a plain where rice, sugar, tea and other products are grown in abundance. The fisheries also are valuable. The island possesses vast supplies of timber; gold, silver, copper and other minerals are mined and camphor is produced as a State monopoly. Taihoku is the capital; Keelung is the chief seaport and other towns are Tainan, Taichu and Kurun. Roads, railway, telephones, etc., are being developed by the Japanese on modern lines, and a university was opened in 1928.

Savage tribes of Malay origin live in the east of the island; Chinese and Japanese have settled in the west. Pop. 4,212,000.

Forres Burgh and market town of Morayshire. It stands on the Findhorn, 12 m. from Elgin and 5 from the Moray Firth. There are a few manufactures and near are the Cluny Hills and some very beautiful scenery. Pop. (1931) 4169.

Forster Baron. English politician. Henry William Forster was born Jan. 31, 1866, and educated at Eton and New College, Oxford. He played cricket for his university and in 1892 entered Parliament as Unionist M.P. for the Sevenoaks division. He was a Lord of the Treasury, 1902-05, and Financial Secretary to the Treasury in 1917. In 1919 he was made a peer and from 1920-25 was Governor-General of Australia. Lord Forster is one of the largest landowners in the London area.

Forster William Edward. English politician. Born at Bradpole, Dorset, July 11, 1818, of a Quaker family, he was educated at Tottenham and married, in 1850, a daughter of Thomas Arnold of Rugby. He became a successful wool manufacturer in Bradford and was elected M.P. for that city in 1861, being successively elected until his death. In 1868 he was made Vice-President of the Council in Gladstone's first Cabinet, and he introduced the Education Act of 1870. He was

Chief Secretary for Ireland in 1880, but resigned in 1882. He died April 6, 1886, having declared his opposition to Gladstone's scheme for home rule for Ireland.

Fortaleza Seaport of Brazil. It stands near the mouth of the River Ceara, 350 m. from Pernambuco. There is a harbour, but it is small and cargoes are landed by means of surf boats from vessels that lie in the roadstead. The trade is chiefly in rubber and other products of the country. Pop. 78,500.

Fort Augustus Village of Inverness-shire. It stands on Loch Ness, on the Caledonian Canal, 34 m. from Inverness, on the L.M.S. Rly. It is a tourist centre. The fort was built in 1716 and was named after Augustus, Duke of Cumberland, who retook it from the Jacobites. Pop. 1030.

Fort de France Capital and seaport of Martinique. It is on the west of the island and has a large harbour. There is a considerable trade in the produce of the island. Its old name was Fort Royal. Pop. 43,300.

Fort Duquesne American fort, on the site of Pittsburgh. It stood where the Monongahela River falls into the Allegheny, and was begun by the English in 1754. The French took it and finished it, calling it after one of their leaders. The English settlers, aided by troops from home, tried to retake it, but failed on two occasions. In 1758, however, the French destroyed and abandoned it, whereupon the English built a new one on the same spot. This was named Fort Pitt and grew into the city of Pittsburgh (q.v.).

Fortescue Earl. English title borne by the family of Fortescue. It has long possessed land in Devon and in 1721 Sir Hugh Fortescue was made Earl of Clinton. The title became extinct in 1751 and in 1789 his nephew and heir was made Earl Fortescue. From him the present earl is descended. The earl's estates are in Devonshire, and his eldest son is called Viscount Ebrington.

Sir John William Fortescue, a younger son of the 3rd earl, is the author of the monumental *History of the British Army* and other books of military history. For a time he was librarian at Windsor Castle.

Fort Garry Early name of the city of Winnipeg. In 1835 the Hudson Bay Co. built a fort on the Red River and around this a settlement grew. In 1873 the name was changed to Winnipeg. A gate at the end of Broadway is the sole relic of the fort.

Fort George Village of Inverness-shire. It is on the Moray Firth, 12 m. from Inverness. It was built during the Jacobite rising in 1745, and the barracks are now used by the Seaforth Highlanders. A ferry crosses the Moray Firth from here.

Forth River and estuary of Scotland. The river rises in Perthshire and flows for about 53 m. to Alloa, where the firth or estuary is said to begin. Stirling stands on its banks and its tributaries include the Teith, Devon and Allan Water. It is navigable by small vessels to Stirling, near which are the windings called the Links of Forth. It is proposed to build a road bridge across the Forth.

The estuary from Alloa to the North Sea at Fife Ness is about 50 m. long. On its banks are Leith, Granton, Grangemouth, Burntisland and Methel, and in it are Inchkeith, Inchcolm and other islands, one being the Bass Rock. It is

connected with the Clyde by the Forth and Clyde Canal, which leaves it at Grangemouth and joins the Clyde at Bowling. The waterway is controlled by a conservancy.

The Forth Bridge carries the L.N.E. Rly. line from South Queensferry in East Lothian to North Queensferry in Fife, and thus saves a long detour. One of the finest bridges in the world, it is nearly 1½ m. long and is built on the cantilever principle with four spans. It is 150 ft. above the water. The bridge was opened for traffic in 1890 and cost about £3,000,000.

Fortification Art and practice of protecting a town or position against an enemy. From the earliest times fortification has been practised in warfare. Earthworks and palisades were among the earliest forms. Later stone was used, and walls and citadels were built as fortifications. A notable instance is the Roman wall between the Tyne and the Solway. The main fortifications of the Middle Ages were the walls which surrounded every town of importance, but the invention of gunpowder destroyed the utility of these.

The next stage in the history of fortification was the erection of earthworks and other defences around a fortress. These were defended by men and guns, and usually formed a formidable obstacle to the enemy. Such were the works of Torres Vedras erected in Portugal by Wellington. In the 19th century fortifications took the form of protecting vulnerable cities by a ring of detached and hidden forts, Antwerp being a notable example. The experience of the Great War, however, showed that these were almost useless against modern artillery.

Fortification still has its uses, although immobile fortresses are of very little value in modern warfare. Positions protected by barbed wire, machine gun pits and other devices, such as those adopted during the Great War along the Western Front, proved very difficult indeed to overcome, even with the aid of all the resources of modern artillery. Coast defences are still powerful fortifications and, as was shown in the Dardanelles and on the Belgian coast, they are still able to keep the battleship and its attendant craft at bay.

Fortress Place occupied by soldiers and protected by walls or defences of other kinds. From very early times fortresses have been a feature in warfare, although at first perhaps, their protections were little more than a fence of wood, or a mound of earth. Stone fortresses soon came into existence and the Greeks appear to have had such in the time of Homer, as Troy was evidently a very strong fortress. The Roman fortresses took the form of protected camps, such as were on the Roman wall in England.

The mediæval castle with its keep and other features was the fortress of the Middle Ages, although the word was also used for walled towns. These castles were gradually built in important positions, so that their occupants could watch a river, a mountain pass, or a harbour entrance. The value of the walled town as a fortress ended with the increasing power of artillery and fortresses of a new type came into being. These were towns protected by earthworks and the like, such as stood between France and the Netherlands in the 18th century and such as figure in the history of the Peninsular War.

Finally, in the 19th century, came the modern fortress, protected by detached forts

and hidden guns. Such were Metz and Antwerp, but in the Franco-German War and still more in the Great War, those failed to fulfil the expectations of their builders. The experiences of the struggle showed that the value of the fortress in modern warfare is very slight indeed.

Fortrose Burgh and seaport of Ross and Cromarty. It stands on the Moray Firth, 8 m. from Inverness, on the L.M.S. Rly. It has a good harbour and attractions for visitors. At one time it had a cathedral, of which there are some slight remains. Pop. (1931) 875.

Fort St. David Name of an old fort in Madras. It stood on the Coromandel Coast, a little south of Pondicherry, and remains of it may still be seen. The land was bought by the English in 1690, and here the East India Co. had a fort until it was taken by the French in 1758. The French destroyed it, but the territory was given back to Britain in 1785.

Fort Sumter Fort in the American state of S. Carolina. It is on an island that protects the harbour of Charleston and is famous because its bombardment by the Southerners on April 12, 1861, opened the American Civil War. It fell on the following day.

Fortuna In Roman mythology, the goddess of good luck or chance. She was especially worshipped at Preneste and Antium and there were several temples erected in her honour in Rome.

Fortunatus Character found in the folk lore of many countries. Fortunatus of Famagusta in Cyprus received from the goddess of fortune an inexhaustible purse and later stole a magic hat which transformed him at will. The earliest German text appeared at Augsburg in 1509. Hans Sachs dramatised it in 1553 and Dekker published a version in England in 1600.

Fortune Telling Professed disclosure by non-rational methods of future events in the life of another. As one of the aims of divination, it is traceable in ancient Mesopotamian records, and was brought from Asia into mediaeval Europe by gipsies, who practised it under society patronage in England in the 17th century. The Witchcraft Act, 1753, punished it with a year's imprisonment and the pillory; the Vagrancy Act, 1824, directs the imprisonment as rogues and vagabonds of persons pretending to tell fortunes. It is still practised by gipsies and others, often for charitable purposes, but is none the less illegal.

Fort William Burgh, market town of Inverness-shire. It is 65 m. from Inverness, on the L.N.E. Rly., and stands on the banks of Loch Eil. It owes its importance to its position at the foot of Ben Nevis. It was built in 1655, and was held against the Jacobites in 1715 and 1716. Near are the works of the British Aluminium Co. Pop. (1931) 2527.

Fort William City and lake port of Ontario, Canada. It stands on Lake Superior, just where the Kaministiquia River falls into it, its position making it a prosperous place. It is 420 m. from Winnipeg, on the C.P.R. and C.N.R. A railway goes to Port Arthur, 4 m. away. The chief industry is the handling of the grain which is shipped here to be conveyed to Europe.

For this there are docks, large elevators and other accommodation.

Fort William was founded in 1801 by the Hudson Bay Co. as a trading post. Pop. 20,600.

Forum In Roman times any open place devoted to public business. It was the official centre of a city's public and corporate life, and was usually surrounded by its chief public buildings, and often ornamented with statues and other works of art. Justice was administered in it or in buildings opening thereon; it was the people's normal place of assembly. Rome had several of these, the most notable being the Forum Romanum and the Forum of Trajan.

The Forum is the name of an influential review published in New York.

Fosdick Henry Emerson. American preacher and writer. He was born on May 21, 1878, and is now (1932) pastor of Park Avenue Baptist Church, New York. His *Manhood of the Master* (1913) is said to have had the largest sale of any modern religious book.

Fosse Way Name of one of the great highways of England in Anglo-Saxon times. It was at first a Roman road and went from Axminster to Lincoln, passing by Bath, Cirencester, Leicester and Newark. It is 180 m. long and much of it is still used.

Fossil Traces of plants or animals in the earth's crust, where they have been embedded by geological agencies. The study of them is known as paleontology. The dating of strata by fossils found therein is fundamental in geological research. The effect of time may be to alter the form or chemical constitution of buried organisms by processes called petrification. Thus, molluscan shells may be preserved unchanged, may be converted into silica, or may disappear, leaving only an external or internal cast. Rocks may perpetuate traces of footprints and even rain drops. **Fossil flour** is infusorial earth. **Fossil ivory** comprises tusks of extinct mammoths extracted from frozen Siberian steppes.

Foster Sir George Eulas. Canadian statesman. Born in New Brunswick, Sept. 3, 1847, he was educated there and at Edinburgh and Heidelberg. He became a professor in New Brunswick, and in 1882 was elected to the Dominion House of Commons. In 1885 he was appointed Minister of Marine and Fisheries; from 1888 to 1896 he was Minister of Finance, and from 1911 to 1921 Minister of Trade and Commerce. In 1914 he was knighted, and in 1919 represented Canada at the Peace Conference in Paris. Later he represented his country at the meetings of the League of Nations. He died Jan. 4, 1931.

Foster Myles Birkett. English artist. He was born at North Shields, Feb. 4, 1825, and was one of the last of the topographical artists of the early Victorian period. His earlier work was in black and white, being illustrations for books, but later he executed many water colour paintings of continental and English landscapes which gained him great popularity. He died at Wadebridge, March 27, 1899.

Fosterage Nursing and upbringing of children by other than their own parents. It flourished in Scotland and Ireland where the clan and tribal chieftains gave out their children to nurse, and many stories are told of the affection that arose between foster relatives.

Fotheringhay Village of Northamptonshire. It is on the Nene, 4 m. from Oundle. It is famous because in the castle here Mary, Queen of Scots, was tried and executed. The building, once a royal residence, has disappeared.

Foucault **Jean Bernard Léon**. French scientist. Born Sept. 18, 1819, he joined the staff of the observatory in Paris. He devoted much time to the study of physical phenomena and invented several instruments, including a polariser. His famous pendulum, 200 ft. long, was hung from the Pantheon in Paris, where it was used to prove the rotation of the earth. He died in Paris, Feb. 11, 1868.

Fouché **Joseph**. French statesman and Duke of Otranto. He was born at Nantes on May 21, 1763, and became minister of the police under Napoleon. Distinguished for his tact, foresight, leadership and shrewdness, he served his country well at a difficult time. He died in exile at Trieste on Dec. 25, 1820.

Foundation Primarily the basis of a building. The best foundation is on rock, as in New York, where the rock will stand any conceivable weight. Many bridges rest on rock well below the water. In this case caissons filled with masonry or cement are sunk on to the rock. Gravel is a good foundation. In other cases an excellent foundation can be made by driving piles into the soft ground. Adelaide House, London Bridge, stands on piles in this manner.

Foundation is also used for a college, school or other society, which has been founded for educational, religious or charitable purposes. The colleges at Oxford and Cambridge, and the public schools are foundations of this kind. Cathedrals and almshouses are also foundations. In all the conditions of the foundation are laid down by charter, or will, or some other document. For instance, a college may consist of a master, ten fellows and 30 scholars. These are on the foundation, but other members of the college are not. The person responsible for the foundation is known as the founder, an example being William of Wykeham at Winchester College.

Sometimes when a limited liability company is formed, certain shares are reserved for the founders. These are called founders' shares, and usually only share in the profits after something has been paid to the other classes of shareholders.

Founding Art of making metal castings. A pattern, which allows for the shrinkage accompanying the cooling of the metal, is supplied to the founder who prepares from it the "mould" in special mixtures of sand and clay, inserting "cores" where required to produce holes in the casting. Molten metal is then run in, forming the casting when cold. Modern developments include centrifugal casting for metal pipes.

Foundling Name used for a deserted or abandoned child, usually an illegitimate one. In Greece and Rome foundlings were cared for by the State, but in more uncivilised countries no heed was taken of them. The Christian Church soon turned its attention to them, and about 800 a foundling hospital was opened at Milan. Many others were set up in the European cities and the Order of the Holy Ghost was established to care for foundlings.

The Foundling Hospital in London was founded by Thomas Coram in 1739. In 1754

a building was erected in Guilford Street, and here for many years 600 or 700 foundlings lived. In 1926 the hospital was removed to Reigate, pending the erection of a permanent home for the foundlings on an estate near Berkhamstead. A fund was raised to preserve the site in Guilford Street as a public recreation ground, and in 1932 the required sum was obtained, largely through the generosity of Viscount Rothermere.

Foundry Building where the casting or founding of metals is carried on. The art of casting reached a high state of development among many of the ancient nations. The furnaces in use range from small gas furnaces to large blast and electric furnaces, and different forms of moulds are used for solid and hollow castings.

Fountain Construction for the supply of artificial water. The use of artificial fountains in conjunction with aqueducts for the water supply of towns and cities was fully understood by the Romans. The ornamental type of fountain dates from the Renaissance period and fine examples exist in many cities such as Rome, Paris and Versailles. At the present time public drinking fountains are in use in most towns.

Fountains Abbey Ruined abbey in Yorkshire. It is 3 m. from Ripon near the River Skell in the grounds of Studley Royal. The ruins, perhaps the most beautiful in England, include parts of the church, chapter house and cloisters, as well as remains of other apartments. The abbey was a Cistercian house founded about 1130. Near is Fountains Hall, a fine house built early in the 17th century.

Fouquet **Nicolas**. French politician. Born in Paris in 1615, he entered the public service at an early age, and in 1650 was made Procurator-General. In 1653 he was made Superintendent of the National Finances, and in that position amassed great wealth which he spent in royal style. This lasted until 1661 when he was arrested and tried. The sentence was imprisonment for life, and he was still a captive at Pignerol when he died March 23, 1680.

Fourier **François Marie Charles**. French socialist. Born at Besançon, April 7, 1772, he lost his money in business and served for about two years in the army. Afterwards most of his time was passed in putting forward the new social system on which his fame rests. In 1808 he published *The Theory of Four Movements*; in 1822, *The Association of Domestic Agriculture*, and in 1829, *The New Industrial World*, this being a rough translation of the French titles. He found a few followers, but their attempt to found a colony according to his ideas was a complete failure. One or two, however, were established on similar lines in the United States. He died Oct. 8, 1837.

Fourier taught that an entirely new social order was necessary. Men and women must be allowed to live as they like, free from the trammels imposed by civilisation. One of them, marriage, should be abolished. He proposed life in communities or phalanges of 1500 or 1800 persons each, housed in a communal building surrounded by a large tract of land. Each man would work as far as possible at what he liked, with constant change of occupation and be assured of a minimum wage, the rest of the communal income being divided in fixed portions to labour, capital and talent.

Fourteen Points The Statement of Allied war aims

presented by President Wilson (q.v.) to Congress on Jan. 8, 1918. The points were (1) open covenants of peace without secret diplomacy; (2) freedom of navigation outside territorial waters; (3) removal of economic barriers; (4) reduction of armaments; (5) impartial adjustment of all colonial claims; (6)-(13) dealt respectively with Russia, Belgium, Alsace-Lorraine, Italy, Austria-Hungary, Balkan States, the Ottoman Empire and Poland; (14) a general association of nations (the League of Nations) to be formed under specific covenants.

Fourth Dimension Term denoting a hypothetical extension over and above the three-dimensional world of length, breadth and thickness in our normal experience. Just as the geometrical forms of lines, planes and solids are expressible algebraically by a , a^2 and a^3 respectively, so a four-dimensional world is expressible by a^4 . Although fourth-dimensional relations are mathematically soluble, the notion of a super-solid state is outside our comprehension. Einstein's theory of relativity studies three-dimensional space in relation to time as a fourth dimension.

Fourth Estate Term used for the Press. Constitutionally there are in Great Britain three estates of the realm, Lords Spiritual, Lords Temporal and Commons. The phrase, Fourth Estate, is believed to have originated with Burke, and is, of course, a reference to the power of the Press in the State.

Fowey Market town and watering place of Cornwall. It stands on the estuary of the Fowey River, 10 m. from Bodmin and 265 from London, on the G.W. Ry. There is a good harbour, a little shipping and some fishing. China clay is the chief export. The town is the Troy Town of Sir A. Quiller-Couch's novels. Place House is a 15th century mansion and there are ruins of a castle. Pop. (1931) 2382.

Fox Animal of the canine family of the genus *vulpes*. The common *V. alopec* averages 4 ft. in length, including the tail, is 14 in. high, weighs from 15 to 22 lb. and is reddish-brown in colour with white-tipped hairs. Foxes differ from dogs in some of the skull bones and in having oval pupils to their eyes. The female is known as a vixen and the young as cubs.

The North American silver or black fox yields a silver-tipped, black fur and is sometimes raised on fox farms. The Arctic fox, *V. lagopus*, brownish with whitish under parts in summer, is entirely white in winter or may be slaty-blue throughout the year, with a thicker winter coat. These furs also are esteemed. The fennec is an African species.

Fox Strait off the north coast of N. America. It divides Baffin Island from Melville Peninsula, and is connected by other arms of the sea with both the Atlantic and the Arctic Oceans. To the south is Fox basin which connects it with Hudson Strait and between the two is the projection of Baffin Island called Fox Land. The strait is named after a sailor, Luke Fox, who explored these regions early in the 17th century.

Two rivers in Wisconsin, U.S.A., are named the Fox, and Fox Islands is another name for the Aleutian Islands.

Fox Charles James. English statesman. The younger son of Henry Fox, Baron Holland, he was born in London, Jan. 4, 1749, and was educated at Eton and Oxford.

In 1769, after a brilliant scholastic career and much travel, he was chosen M.P. for Midhurst, which he represented until 1780, when he was elected for Westminster. After filling minor positions, in the ministry of Lord North, he joined the Whigs, and became the most powerful advocate of all liberal causes. He wanted parliamentary reform, liberty for Roman Catholics, freedom for the American colonies and the removal of Ireland's disabilities. In 1789 he went beyond most of his associates when he greeted the fall of the Bastille with welcoming and memorable words, and, in spite of its excesses, he remained a firm supporter of the Revolution. This led, in 1791, to the rupture of his long friendship with Burke, but irrespective of this he retained his regard for the great Irishman to the end.

Fox's political life was mainly spent in opposition to the government, but in 1782 he was Secretary of State for a few months and in 1783-84 he helped Lord North to form a coalition. On this occasion, again being Secretary of State, he prepared a bill for the reform of the government of India, but this was rejected. In 1792, his followers being very few, he ceased to attend the sittings of parliament; he returned, however, in 1802, and again took up the task of opposing Pitt and the French war. When Pitt died he became a Secretary of State, but a few months later, on Sept. 13, 1806, he died at Ohliewick. He was buried in Westminster Abbey.

Fox George. Founder of the Society of Friends. He was born in July, 1624, at Fenny Drayton, Leicestershire, the son of a weaver. He became a shoemaker, but gave his time to preaching. He was something of a mystic and believed in the guidance of what he called the inner light. With rare courage and perseverance, he travelled over the country and soon had followers in many places. These met regularly for worship on the lines laid down by Fox and were called by him the Society of Friends and by others Quakers. He denounced war, formality in worship and the taking of baths, and it is not surprising that he was often put into prison for his opposition to authority. He travelled through Wales and Scotland and then visited the West Indies, North America and Germany. He died in London, Jan. 13, 1691. Fox's *Journals* is one of the world's great books.

Fox Richard. English statesman and prelate. Born at Ropesley, Lincs, he was educated at Oxford and Cambridge. In 1485, whilst in Paris, he entered the service of Henry VII., becoming his trusted adviser. He was appointed Secretary of State and Lord Privy Seal, becoming Bishop of Exeter in 1487. He was transferred successively to the sees of Bath and Wells, Durham and Winchester. On the accession of Henry VIII., in 1509, he lost his power and resigned the privy seal in 1516. He was the founder of Corpus Christi College, Oxford, and died Oct. 5, 1528.

Foxe John. English martyrologist. Born at Boston, Lincs, in 1516, he was educated at Oxford, becoming a fellow of Magdalen College in 1539. On his conversion to the tenets of the Reformation, however, he resigned his fellowship. For a time he was tutor to the sons of Henry Howard, Earl of Surrey, but soon after the accession of Mary he went to Frankfurt, where he met Knox, and then to Basle, where he obtained work as reader to a printer. He returned to England

when Elizabeth came to the throne, and in 1560 was ordained by the Bishop of London. In 1562-3 he published his great work, *Acts and Monuments*, popularly known as *The Book of Martyrs*. He died April 18, 1587.

Foxglove Genus of hardy biennial or perennial herbs (*digitalis*). They are natives of Europe, W. Asia and N. Africa. The only British foxglove, *D. purpurea*, is the stateliest, bearing spikes of drooping, thimble-shaped pink flowers, spotted inside. Gardeners have produced cream, white, rosy-purple and spotted blooms, propagated by seeds or offsets. One gloxinia-like variety has erect flowers. The large wrinkled leaves yield digitalin and other active principles used medicinally as heart tonics and sedatives. See DIGITALIS.

Foxhound Breed of hound maintained for fox hunting. Smaller than the stag hound, it averages 20 or 22 in. in height and may be descended from a blend of bloodhound and greyhound with a bulldog strain. It is notable for fleetness, strength, fine scent, endurance and subordination and is deep-chested and straight-limbed, with a smooth parti-coloured coat. The hounds are bred for hunting purposes and great care is taken to maintain and improve the breed.

Foxhunting Popular English sport. Practised in England for at least 700 years, at first it had for its object the killing of the fox on account of the damage done by that animal. Later it developed into a sport, which was at its zenith in the 18th and 19th centuries. Foxes are preserved and landowners and farmers co-operate to maintain a supply.

The chief counties for fox hunting are the shires of Leicester, Northampton, Warwick and thereabouts, but it is also carried on in many of the other counties. The country is divided into a number of hunts, each consisting of a master, a pack of hounds and paid servants to look after them. The expenses are usually met by subscription, although one or two packs are private property, as in the 18th century. The most famous hunts are the Quorn, Pytchley, Cottesmore, Belvoir and others in the Midlands. Fox hunting is carried on in Ireland and in Scotland, but not to any great extent elsewhere. There are about 200 packs of hounds in Great Britain and nearly 100 in Ireland.

The fox-hunting season lasts from November to April. It is preceded by a period of cub hunting, really a trial for the hounds and young foxes.

Fox Terrier Breed of dog. It is an intelligent and companionable house dog. The smooth type has a wiry coat, usually black, white and tan, less desirably with liver-coloured markings, and is capable of prolonged exertion, although it is not a rapid runner. The rough-coated terrier is better equipped with the hunting instinct, although both are employed in following burrowing mammals such as weasels into their earths. They kill rats with rapid snaps, despatching them more expeditiously than do cats.

Fox Trot Dance of American origin. It consisted at first of alternate slow and rapid movement, not unlike that of the fox, and was at first part of a stage performance. It then became a dance for two, and, as such, was very popular in the 20th century. There are several variations.

Foyle Lough of the north coast of Ireland, also the name of a river that flows into it. Londonderry stands on the river, which is 16 m. long. The lough lies between the counties of Londonderry and Donegal—hence one side is in Northern Ireland, the other in the Free State.

Fraction In mathematics any part of a unit. In common or vulgar fractions the number above the bar is termed the numerator and the number beneath the bar the denominator. Thus in the fraction $\frac{1}{3}$, three is the numerator and eight the denominator. In decimal fractions, the denominator is ten or some power of ten, a dot or decimal point being placed before the number. Thus $\frac{1}{10}$ represents one-tenth, $\frac{325}{1000}$ equals three-tenths plus two-hundredths plus five thousandths. See DECIMAL.

Fracture Breach in any hard body. In a bone, it may result from direct or indirect violence, or muscular action. It is called a **simple fracture** when no wound from it penetrates the skin externally, otherwise it is called **compound**, except where another serious injury is produced, as dislocation or rupture, then it is called **complicated**. If the bone is broken into several pieces it is a **comminuted fracture**. If merely cracked, it is fissured, if one part is driven into another it is impacted and if partly broken or partly bent, as with children's soft limb bones, it is called **greenstick**.

Fragonard Jean Honoré. French artist. Born at Grasse, April 5, 1732, he studied painting and soon made a reputation. He painted pictures of contemporary life and also landscapes. Of his works the five called "The Lover's Progress" belong to Mr. Pierpont Morgan; others are in the Louvre and the Wallace Collection, London. Fragonard died, Aug. 2, 1806.

Fram Vessel famous in polar exploration. A three-masted schooner with auxiliary steam engines, she measured 117 ft. and weighed 402 tons. Nansen used her for a northward drift, followed by travel with sledges to 86° 13' N., in 1893-7. Sverdrup used her for exploring Jones Sound in 1899. Amundsen used her for reaching King Edward VII. Land, whence he marched to the South Pole, in 1910-12. In 1931 a fund was raised for preserving the Fram.

Framlingham Market town of Suffolk. It is 22 m. from Ipswich and 90 from London, with a station on the L.N.E. Ry. In St. Michael's Church members of the Howard family are buried. There are considerable remains of one of their castles. Framlingham College, founded in 1876 as a school for boys, occupies a fine block of buildings. The town has an agricultural trade. Pop. 2200.

Frampton Sir George James. English sculptor. Born in 1860, he studied under W. P. Frith and at the Royal Academy Schools, London, gaining the Gold Medal and travelling scholarship in 1887. He was elected a Royal Academician in 1902 and knighted in 1908. His work, which is of a high order, is represented by his statue of Queen Victoria in Calcutta, Peter Pan in Kensington Gardens, London, and the Edith Cavell Memorial in London. He died May 21, 1928.

Franc Standard coin of France, Switzerland and Belgium. It was originally a gold coin issued in 1360, silver francs

FRANCE, SPAIN & PORTUGAL



Kilometres 0 100 Scale 1:9,200,000 (145 miles = inch) 0 100 Statute Miles

being first coined in 1575. In its present form, as a unit of the decimal system, it dates from 1795. It is divided into 100 centimes, and for many years it was valued at 25 to the £ sterling, being worth, therefore, just under 10d. in English money.

In France during the Great War the franc fell enormously in value and violent fluctuations took place. This lasted until June, 1928, when in France it was stabilised at 124.21 to the £, or rather less than 2d. in English money. Some British investors who had lent money to France when the franc was high lost heavily owing to its changed value.

In Belgium the franc has been stabilised at 175 to the £ sterling: in Switzerland it retains its original value.

France Republic of Europe. It covers 212,660 sq. m. and stretches from the English Channel to the Pyrenees and the Mediterranean, and from the Atlantic Ocean, of which the Bay of Biscay is part, to a land frontier dividing it from Belgium, Germany, Switzerland and Italy. There are mountains, including the Vosges and some Alpine peaks, in the east and a great plateau in the centre. In the south the Pyrenees enter the country, and in the north-east are the Ardennes, but most of the land is flat. The chief rivers are the Loire, Seine, Garonne, Somme and Rhone and there are many others. Paris is the capital and the largest city. Next in size are Marseilles, the great seaport, Lyons, Bordeaux, Lille, St. Etienne, Nantes, Nice, Toulouse, Strasbourg and Havre, each with over 150,000 inhabitants. In 1931 the population, as shown by the census, was 41,834,923, an increase of 1,091,028 in five years. A large part of the increase (395,281) is in the foreign population, which numbers 2,890,923.

TERRITORIAL DIVISIONS. Before the Revolution, France was divided into provinces and some of these retain something of their old independent life. In this respect Brittany is perhaps the most notable, but Normandy, Gascony, Picardy, Provence and Languedoc are only a little less so. To-day the country is divided into 90 departments, one being the territory of Belfort, mostly named after the rivers therein. Three of them form the district of Alsace-Lorraine, which was in German hands from 1871 to 1918. Each department has a prefect and a council, and is divided into *arrondissements* and *communes*.

GOVERNMENT, ETC. The head of the government is the president, who is elected for seven years by the two houses of the legislature together. These two houses are the Chamber of Deputies and the Senate. The deputies are elected, by all male citizens, for four years. The members of the Senate are elected for nine years by colleges of electors in the various departments. As in Great Britain, the work of the Government is in the hands of a ministry: the head of this, the Prime Minister, is selected by the President, but he must have the confidence of the legislature to enable him to carry on his work. The other ministers are chosen by him, but appointed by the President. Both senators and deputies are paid. As it is very unusual for one political party to secure a majority in the Chamber, the ministries are usually coalitions, or, as the French call them, *blochs*.

There is no state religion in France, but the prevailing faith is the Roman Catholic, which church has about 50,000 clergy in its dioceses. Monastic orders are subject to very severe

regulations. There are about 1,000,000 Protestants in France. Education, secondary and university, as well as primary, is controlled by the state, and there is an efficient system of universities, colleges and schools. Justice is administered in local courts, with courts of appeal above them, the highest being the court of cassation.

France maintains a large army, including an air force, recruited by compulsory service. It is organised in 35 divisions, or about 500,000 men, with large reserves. In addition there is a colonial army. France has also a large navy based at Toulon, Lorient, Brest, Cherbourg and Rochefort.

ECONOMICS. With a soil generally fertile, France is a great agricultural country. Wheat and other cereals are grown, and cattle, sheep and horses reared. A great quantity of wine is produced and exported. There are many manufactures, the chief industrial centres being Paris, Lyons and the district in the N.E. where is a valuable field of coal and iron ore. Besides providing for home consumption large quantities of silk and cotton goods, iron, steel and chemicals are exported. The manufacture of silk is peculiarly a French industry, as are several others that call for artistic skill. The fisheries are valuable.

The country has an excellent railway system, which is steadily being electrified. The unit of currency is the franc, which is divided into 100 centimes. The metric system is in general use. The Bank of France is the state bank.

COLONIES. France has numerous colonial possessions. These cover 3,958,600 sq. m., and have a population of 55,600,000. The largest area in Africa, where a vast area in the equatorial region is French. Algeria, Tunis and Madagascar are also French, as is part of Somaliland. Part of Cameroons and Togoland are administered under mandate. Much of Morocco is a French protectorate. In Asia, France has Indo-China consisting of Annam, Cambodia, Tonking, and Cochinchina, and Pondicherry in India, whilst she administers Syria under mandate. The remaining possessions include French Guiana and a few W. Indian islands, and New Caledonia and some other islands in the Pacific Ocean.

HISTORY. As part of the Roman Empire, France was one of the most civilised regions of Europe, and there Roman influence was very powerful and lasting. Later it was invaded and conquered by the Franks and became part of the empire founded by Charlemagne. Early in the 11th century it had its own kings, but their authority was for some time very circumscribed, as much of the land was under powerful dukes and counts, especially Normandy, Burgundy and Aquitaine.

In the later Middle Ages the history of France is largely one of wars with England for the possession of the crown. This period ended in the 15th century and then France, under the Valois and later the Bourbon kings, became the most centralised monarchy in Europe. When Brittany was included, it took very much the shape it has to-day, except that its N.E. and E. boundaries were frequently altered owing to the vicissitudes of war.

The kingdom of France reached the height of its glory under Louis XIV. (1643-1715), when it led the social life of Europe and gained a dominance not yet wholly lost. It was at that time a great military nation, and enjoyed a great flowering of intellectual life.

To this picture there was a dark side, one of extravagance and corruption, and even worse, a vast amount of injustice towards the poor. For this a heavy price was paid when the French Revolution destroyed the monarchy and set up a republic. Then came the empire of Napoleon which ended in 1815, after which the Bourbon monarchy was restored. This lasted until 1830 when Louis Philippe became king of the French. In 1848 he was overthrown, and a second republic established. From this Louis Napoleon emerged as the Emperor Napoleon III., and reigned until 1870.

The third republic was created after the Franco-Prussian War in 1871, and exists to-day. It carried through the Great War, and when this was over turned to the task of bringing back prosperity to France and securing her from the danger of future attacks. This policy, both military and economic, was not always acceptable to the other nations of Europe, but her statesmen kept on their chosen course. A member of the League of Nations, France took a leading part in various European conferences, including the important one in London in July, 1931, and that at Lausanne in July, 1932, which settled the question of reparations. France being represented by the premier, Edouard Herriot (q.v.).

France Anatole. French author whose real name was Jacques Anatole Thibault. The son of a bookseller, he was born in Paris, April 16, 1844, and was educated at the College Stanislas there. He soon began to write, and in 1868 produced a book on Alfred de Vigny. This was followed by some poems, and then came some stories. About 1880 he began to write novels, and in the course of the next few years he had a reputation, to which his further work added. In 1896 he was elected to the Academy, and before the end was regarded as the greatest man of letters in France and one of the greatest in the world. A Socialist and a free-thinker, he defended Dreyfus and used his pen to vindicate the cause of France during the Great War. He died Oct. 13, 1924.

A supreme master of style and satire, France's best work is in his satirical novels notably *L'Île des Pengouins*, *La Révolte des Anges* and *Les Dieux ont Soif*. Hardly less noticeable, however, were his critical studies in history and literature, such as the book on Jean of Arc and the essays in *La Vie Littéraire*. *Thais*, an Egyptian story, and *M. Bergeret à Paris*, dealing with the Dreyfus affair, are also notable. Of his early books the best is *Le Crime de Sylvestre Bonnard*.

Franche Comté District of France. It means free county and received the name because it was the free County of Burgundy. It was at first ruled by counts, who were almost independent. Soon after 1400 it was included in the Duchy of Burgundy, and in 1477 it was seized by France. The Hapsburgs, as the heirs of the dukes of Burgundy, recovered it and kept it until 1678, when it was given by treaty to France. It is in the E. of the country, around the Saône. Its capital was Dôle and then Besançon.

Franchise In its earlier sense a privilege or liberty, especially one granted by the crown. Thus early franchises included the right to hold a market. Later the word came to be used for the right to vote at elections of Parliament, and in this

sense it is chiefly used to-day. In the United Kingdom, by a series of Acts of Parliament, the franchise has been extended, and, since 1928, practically all adult men and women enjoy the right to vote. A similar process has taken place in many other countries, although in some, France for example, the franchise is still confined to men. See ELECTION, VOTE.

Francia Francesco. Italian painter. A native of Bologna, he was born about 1450. Before becoming a painter he worked as a goldsmith, doing some excellent work in metal and acting as head of the mint in his native city. About 1490 he turned to painting and produced a number of pictures before his death at Bologna, Jan. 6, 1517.

Francia is represented in the National Gallery, London, by a "Madonna and Saints."

Francis Italian saint known as Francis of Assisi. He was born at Assisi, the son of a merchant, about 1182, and was baptised as Giovanni. Later he was called Francesco, or the little Frenchman, and by this name he is known. He lived the usual life of a wealthy young man, broken by a spell of military service, during which he was taken prisoner. After his release he had a serious illness, and from this time dates his career as a saint. He gave this time to prayer, and the service of the poor, and in 1207, having mortally offended his father, left his native city as a pauper.

For two years Francis wandered about preaching in public places and paying special attention to the lepers. He soon attracted a few followers, and in 1210 went to Rome and obtained permission to found an order devoted to poverty, work and service. Thus the Franciscan order came into being. For the rest of his life Francis was occupied in preaching, his journeys extending through France and Spain and as far as Egypt, in addition to many in Italy. In his last days he passed much time in devotion and in Sept., 1221, he is said to have received on his body the five wounds of Christ. He died Oct. 3, 1226, and two years later was canonised.

A sincere devotion to poverty and a real sense of the brotherhood of man, shown by his care for lepers and other outcasts, coupled with a great piety and much mysticism, made Francis the model of mediæval sainthood and a character of unusual charm. His love of birds and flowers is an attractive trait in his character and another was his friendship with S. Clare. He wrote many sermons, hymns and other pieces, both prose and verse.

Francis I. German king and Roman emperor. He was born Dec. 8, 1708, the son of Leopold, Duke of Lorraine; he succeeded his father in 1729. In 1737 he became Grand Duke of Tuscany. He had married the preceding year, Maria Theresa, daughter of the emperor Charles VI., who, on her father's death, became sovereign of Austria-Hungary and Bohemia. Largely through her activities, he was elected emperor in 1745, and all his life he was dominated by her. He died Aug. 18, 1765.

Francis II. Emperor of Austria and the Holy Roman Empire. Born Feb. 12, 1768, the son of Leopold, Grand Duke of Tuscany, who became emperor in 1790, he succeeded to the throne in 1792, and in 1804 took the additional title of Emperor of Austria. He was the brother of Marie Antoinette, and from 1797-1809 was

often at war with France, being, after each campaign, compelled to submit to humiliating terms of peace. His daughter, Marie Louise, became Napoleon's wife, but, nevertheless, in 1813 he joined the allies and greatly assisted in the final defeat of the great emperor. Francis was the last emperor of the Holy Roman Empire which was dissolved in 1806, and the first Emperor of Austria. He died March 2, 1835.

Francis I. King of France. Born Sept. 12, 1494, a son of the Count of Angoulême, he belonged to a younger branch of the royal family, and like his sister Marguerite, who wrote the *Heptameron*, he was well educated; he was also adept at all manly exercises. In 1514 he married Claude, daughter of his cousin Louis XII. and in 1515 he succeeded Louis as king. His reign was chiefly occupied with his wars against the emperor, Charles V., who took him prisoner at Pavia in 1525. In 1526 he was released, and he reigned until his death at Rambouillet, March 31, 1547.

He was a patron of art and literature, which included the foundation of the Collège de France in 1530; this showed him as a true child of the Renaissance. He was succeeded by his son, Henry II.

Francis II. King of France. Born Jan. 19, 1544, he was the eldest son of Henry II. and Catherine de Medici. In 1558 he was married to Mary, Queen of Scots, and in 1559 he succeeded his father as king. On Dec. 5, 1560, he died in Paris and was succeeded by his brother, Charles IX.

Francis Sir Philip. English writer. Born in Dublin, Oct. 22, 1710, he was educated at St. Paul's School, London, and in 1738 entered the public service. He was soon occupying a responsible position, and in 1773 went to India as a member of the Council of Bengal. He remained there until 1781, having fought a duel with Warren Hastings and made a small fortune at cards. In 1784 he was elected an M.P., and was a member of the group by whom Hastings was impeached. His other activities included the founding of the Society of Friends of the People, and a friendship with the Prince Regent. In 1806 he was knighted, and he died Dec. 22, 1818. He was supposed to have written *The Letters of Junius*, which, however, he never admitted, and the authorship cannot for certain be attributed to him.

Franciscan Order of mendicant friars founded by S. Francis of Assisi in 1210. Formally approved by the pope in 1223 they laid special stress on preaching and ministering to the body and some Asiatic, N. African and American missions still survive. In England, where they arrived in 1221, founding houses at Canterbury, London and Oxford, they were known as Grey Friars. At the dissolution of the monasteries in 1537, 66 of their friaries existed.

Other Franciscan orders comprise nuns called Poor Ladies or Poor Clares, 1212, and Tertiaries, 1221. From the stricter section called Observants, the Conventuals, who practised a mitigated rule, separated in 1517, whilst the Capuchins, established in 1525, separated in 1619. After 1897 those members of the order who were neither Conventuals nor Capuchins, became known as Friars Minor. Franciscans wear a grey or dark-brown cowl, girdle and sandals.

Francis Ferdinand Austrian archduke.

Born at Graz, Dec. 18, 1863, the son of Archduke Charles Louis, he was nephew to the emperor Francis Joseph, and on the death of the Crown Prince, in 1889, became heir-apparent to the throne. In 1900 he contracted amorganatic marriage with the Countess Sophia Chotek, who was created Princess of Hohenberg, renouncing for his wife and her children the right of succession. Whilst on a visit to Bosnia, he and his wife were assassinated at Sarajevo, June 28, 1914.

Francis Joseph Emperor of Austria-Hungary. The eldest son of the Archduke Francis, a grandson of the Emperor Francis II. and a member of the house of Hapsburg, he was born in Vienna, Aug. 18, 1830. In 1848 his uncle, Ferdinand, abdicated and Francis Joseph succeeded him. His reign, which lasted for 68 years, was one of misfortune, both nationally and personally. There was much discontent in the various parts of his empire, and in 1859 he lost some of the Austrian possessions in Italy, the rest going a few years later. More humiliating still was the rapid defeat of Austria by Prussia in 1866, and the end of Austria's long dominance in German affairs. However with an innate stubbornness the emperor held on, and towards the end took the fatal step of attacking Serbia, after the murder of his nephew and heir, Francis Ferdinand.

Francis Joseph married Elizabeth, a Bavarian princess. His only son, Rudolph, met with a tragic death in 1889. He himself died in the midst of the war, Nov. 21, 1916, and was succeeded by his nephew Charles.

Franck Cesar Auguste. French composer. He was born at Liège, Dec. 10, 1822, and after studying music there and in Paris, became a teacher of music. He also became organist of a church in Paris, and in 1878 Professor of the Organ at the Conservatoire there. He composed a great deal, including some orchestral works. He died Nov. 8, 1890.

Franconia District of Germany. It was at one time one of the great duchies and some of its rulers became German kings. Named after the Franks, it lay in the W. of the country with Frankfurt as its capital. In 1024 the duchy was divided between several princes, but the name remained in general use, and until 1802 the bishops of Würzburg called themselves dukes of Franconia.

Most of Franconia is now included in Bavaria, and three districts of the republic are middle, lower and upper Franconia.

Franco-Prussian War

Struggle in 1870-71 between France and Prussia, the latter aided by Bavaria and other German states. There was some tension because Napoleon III., then ruling France, objected to the selection of a German prince as king of Spain. Thinking the time favourable, Bismarck precipitated the struggle by altering and publishing a telegram from Ems which made it appear that the King of Prussia had insulted the French Ambassador.

War was declared by France on July 19, and on Aug. 6 the main armies came into contact. At Woerth and Spicheren the Germans, who invaded France in three armies, were victorious, and soon the French had

abandoned Alsace-Lorraine, except the fortress of Metz. German victories at Vionville, Mars-la-Tour, and, on Aug. 18, Gravelotte, forced a large French Army to take refuge in Metz. Then on Aug. 31 and Sept. 1, came the decisive Battle of Sedan. This ended in the surrender of Napoleon and his army and, a little later, the forces in Metz followed this example.

The Germans then marched unopposed to Paris, which was besieged from Sept. 20 until its surrender in Jan., 1871. During these months the French raised new armies, and there was a good deal of fighting around Orleans and elsewhere, but nothing could save their cause. The armistice was followed by the peace of Frankfort. France agreed to surrender Alsace-Lorraine, except one small district, and to pay an indemnity of \$200,000,000.

Frankfort City and river port of Germany, usually called Frankfort-on-Main. Situated 22 m. from the junction of the Main with the Rhine, in the Prussian province of Hesse-Nassau, it is, owing largely to its position, one of the most important German cities. The old town is on the north side of the river; on the south side is Sachsenhausen and all around, stretching far beyond the lines of the old fortifications, are modern suburbs.

Among the many famous buildings in the old town are the Kaisersaal and the cathedral. The old home of the Rothschilds is now a museum, as is the house in which Goethe, Frankfort's most famous son, lived. The university dates from 1914.

The palace garden and the zoological garden are famous, and there are some noble memorials. An old bridge and several modern ones cross the river.

Frankfort is a noted banking city, and in its population is a large Jewish element. It is an important railway centre and has a considerable trade along the river. Other industries include numerous manufactures and printing works.

HISTORY. Frankfort, the city of the Franks, was an early residence of the Frankish kings, and quickly became a free city. It was the place chosen for the election and later the coronation of the German kings, and in the later Middle Ages, its wealth and importance grew rapidly. It was an early home of printing and had important fairs. From 1810-14 it was the capital of a grand duchy, and from 1816 to 1866 the meeting place of the diet of the German Confederation. In 1848-49 the great National Parliament, elected to conclude a union of the German states, met here. In 1866 the free city took the side of Austria against Prussia and consequently lost its exceptional status. Since then it has been part of Prussia. Pop. 467,500.

Frankfort -on-the-Oder. City of Prussia. It stands on both sides of the Oder, 50 m. from Berlin, and is a shipping and manufacturing centre and a railway junction. There are docks along the river, which is connected with other German rivers by canals. Frankfort proper is on the left bank of the Oder; on the right bank are suburbs. Frankfort belonged to the Hanseatic League in the Middle Ages. Pop. 75,000.

Frankincense Aromatic gum resin. It is yielded by various trees, pre-eminently of the genus

Boswellia, which grow mainly on the Somaliland and Arabian coasts, whence it reaches Bombay. It appears in commerce as hardened yellow tear drops called gum olibanum. It entered into the incense of the Jewish sanctuary (Ex. xxx.). Long employed medicinally it is nowadays rarely used.

Franking Use of the postal service gratuitously. Members of Parliament, both peers and commoners, long enjoyed the privilege of sending their letters, and those of their friends through the post without fee. In 1764 the number for each member was restricted to 10 a day, and in 1840 the privilege was abolished. Official letters are still franked when sent on public business, by marking the envelope O.H.M.S.

Franklin Name sometimes used in mediæval England for a small independent landowner. He was below the nobles, but above the villains. Chaucer has a franklin in *The Canterbury Tales*, and the word is used by Scott in *Ivanhoe*.

Franklin Benjamin. American politician and scientist. Born in Boston, Jan. 17, 1706, the son of a tallow chandler from England, he was apprenticed when a boy to his brother, a printer. In 1723 he settled in Philadelphia, but soon went on a vain errand to London, where also he worked as a printer. Returning to Philadelphia he became owner of *The Pennsylvania Gazette*, and in 1732 started the popular *Poor Richard's Almanac*. Prominent in public life, he was postmaster of the city in 1735; in 1736 he was made Clerk to the General Assembly of the state of Pennsylvania, and in 1751, on giving up that post, he became a member, remaining such for 13 years.

In 1757, as agent for his state, Franklin went to London, and remained there until 1762; he filled the same position from 1761 to 1775 and to these two periods is due his acquaintance with English men and manners. In 1776 he helped to draw up the Declaration of Independence, and went to Paris on behalf of the revolting colonies where he arranged for the help of France in the struggle with Britain and remained until peace was signed in 1783. He was President of the State from that time until he retired in 1788, and helped to draw up the constitution of the United States. Franklin died in Philadelphia, April 17, 1790.

Franklin spent much of his time in scientific research, particularly on electricity. A practical result was his invention of the lightning conductor.

Franklin Sir John. English explorer. Born at Spilsby, Lincs, April 16, 1786, he entered the navy in 1801, and was present at the Battles of Copenhagen and Trafalgar. In 1818 he made his first Polar expedition to the Arctic, under the direction of Capt. Buchan. In 1819 he explored and charted the little-known northern coasts of America, writing on his return a *Narrative of the Journey*. In 1829 he was knighted, and was Governor of Van Diemen's Land, 1830-43. In 1843 Franklin set out in search of the N.W. Passage, and for many years nothing was heard of him. Several expeditions were sent in search of his party, and in 1859 a paper was found giving some record of the ill-fated voyage and of Franklin's death, June 11, 1847. It proved also that he had actually discovered the N.W. Passage.

Franks Name given to some European tribes. They are first heard of in the 3rd century and lived along the lower courses of the Rhine. Each tribe was under a chief, but these united together, and in the 4th century were collected into only two groups, the Riparian Franks and the Sallian Franks. Under the leadership of Clovis the Sallian Franks moved into what is now known as France, and in 481 he was made their king. Thus began the Kingdom of France, which took their name. Clovis conquered much of the land, and the Riparian Franks came under his rule. Later, however, in the 9th century, when their land had extended in all directions, the Franks again broke into two divisions. The west Franks remained in France, whilst the east Franks founded what later became Germany.

Franz Joseph Land Archipelago in the Arctic Ocean, to the east of Spitzbergen. It consists of about sixty volcanic islands, mostly glacier-covered. It was discovered by Julius Payer in 1873.

Frascati City of Italy. It is 15 m. from Rome, and owes its fame to its beautiful position on the Alban Hills. On this account it became a popular resort in the hot weather and many Roman families had villas there. There is a modern cathedral in which Charles Edward, the Young Pretender, was buried in 1788; and around are vineyards, the place being noted for its wine. Near are the ruins of an amphitheatre. Pop. 10,000.

Fraser River of British Columbia. It is a union of the N. and the S. Fork, two rivers that rise in the Rocky Mountains. They join at Fort George and flow, as the Fraser for 750 m. to the sea in the Strait of Georgia. The river is famous for its salmon and also for the scenery along its course. It is navigable for about 100 m.

Fraserburgh Burgh and seaport of Aberdeenshire. It is 47 m. from Aberdeen and 155 from Edinburgh, on the L.N.E. Rly. There is an excellent harbour, and the place is one of the Scottish centres of the herring fishing. Pop. (1931) 9720.

Fraserville Town and riverside resort of Quebec, Canada, also known as Rivière du Loup. Standing where that river falls into the River St. Lawrence, 110 m. from Quebec, it is a port, a pleasure resort and has some manufactures. Pop. 7700.

Fraud Deceit or imposture. In English law it is an offence to commit a fraud, i.e., to gain an advantage by a deliberate act of deceit. Some frauds, for instance, a conspiracy to defraud, are criminal offences. The statute of frauds is an important measure dating from 1676. By it no one can bring an action for fraud unless he has written evidence to support it.

Fraunhofer Joseph von. German scientist. Born in Bavaria in 1787 he became a glass polisher, a career which led him to study mathematics. In 1806 he secured a position as optician in an institute at Munich, and in 1809 he helped to found a similar institute which he controlled. He died June 7, 1826.

Fraunhofer did a great work in making lenses for telescopes and microscopes, but his greatest achievement was to discover the lines in the solar spectrum named after him. He counted and mapped out 600 of

these and gave the distinctive letters A to H to the most important of them. Much work has since been done in the same direction, and over 10,000 lines have now been counted, but the inception of this branch of astronomy is due to Fraunhofer.

Frazer Sir James George. British scholar. Born in Glasgow in 1854, he was educated privately. His life was spent in studying comparative religion and its associations with folklore and mythology and this led to publication in 1890 of *The Golden Bough*, the greatest work of its kind. Several editions have appeared, each with additional information. In 1915 it was again published in 12 volumes, and in 1922 in an abridged edition. In 1907, Frazer was made Professor of Social Anthropology at the University of Liverpool, and in 1920 an F.R.S. In 1914 he was knighted, and in 1925 was given the O.M. His other writings include *Totemism and Exogamy*, *Balder the Beautiful and Folklore in the Old Testament*.

Freckles Brownish yellow spots appearing in the skin. They are found particularly on the face, neck and hands of fair and red-haired persons during hot and windy weather, and comprise pigmented areas in the deeper layers of the cuticle. They are stimulated by exposure and are best left alone.

Treatment. -Lergyel's Birch Balsam is a good lotion to apply to freckles with a brush or soft piece of rag once daily. It should be washed off with soft water in about half an hour and the skin carefully dried.

Frederick I. Emperor of the Holy Roman Empire, known as Barbarossa. Born about 1121 he belonged to the Hohenstaufen family, and in 1147 succeeded his father as Duke of Swabia. In 1152 he was chosen German king in succession to his uncle, Conrad III., and in 1155 he was crowned Emperor in Rome. Frederick's long reign fell into two spheres of activity. To Germany he was a strong and resolute ruler, crushing the powerful dukes who opposed his authority. In Italy, Frederick was much less successful. Having quarrelled with the pope, he set up popes of his own, but his attempts to maintain them met with only partial success. Other enemies rose up against him, and in 1176 his armies were beaten at Legnano, and in 1177 he signed a humiliating peace at Venice with Pope Alexander III. In 1189 he set out on a crusade, and he was drowned in Asia Minor on June 10, 1190.

Frederick II. Emperor of the Holy Roman Empire. Born in Italy, Dec. 26, 1194, he was a son of the Emperor Henry VI. In 1196 he was chosen German king, and in 1197 became King of Sicily. His extraordinary abilities won for him the title of *stupor mundi*, the wonder of the world.

In 1212 Frederick went to Germany and was crowned king, but he had a hard fight to establish his position there, which was never very secure. In 1220 the pope crowned him Emperor in Rome, and in 1228, after some years in Sicily, he went as a crusader to Palestine and was crowned King of Jerusalem. On his return he quarrelled with the pope, and the latter was beaten and humiliated. Frederick's sons, Henry and Conrad, in turn rose in rebellion against him, and by 1239 he was faced with a very formidable circle of enemies, both in Germany and Italy.

With these the pope made an alliance, and the war that broke out continued during the rest of his reign. Time and again Frederick's cause seemed hopeless, but with remarkable perseverance he kept up the fight to the end.

On Dec. 13, 1250, the emperor died. He was buried in Palermo, the seat of his magnificent court.

Frederick German emperor. He was born at Potsdam, Oct. 18, 1831. Son of the Emperor William I. He commanded an army in the war against Austria in 1866, and another in the struggle with France, 1870-71, and was Crown Prince of Germany from that time until he became Emperor in 1888. He only reigned a few weeks, as on June 15, 1888, he died of cancer of the throat. Frederick married Victoria, eldest daughter of Queen Victoria of England. They had two sons and four daughters. The sons were William II. and Prince Henry of Prussia.

Frederick King of Bohemia. Born Aug. 26, 1596, he was a son of Frederick IV., elector palatine of the Rhine, and became elector as Frederick V. in 1610. In 1613 he married Elizabeth, daughter of James I., and in 1619, being a Protestant, he was elected King of Bohemia. His enemies, however, were too strong for him. He was called derisively "the winter king," and driven from the land. His enemies also took from him his electorate, and although James sent help he could not recover it. From 1623 until his death, Nov. 29, 1632, Frederick was an exile. One of his children was Sophia, electress of Hanover; he was thus an ancestor of King George V. Prince Rupert was one of his sons.

Frederick Name of eight kings of Denmark. The most important are Frederick VII. and Frederick VIII. The former, who reigned from 1848 to 1863, was the last king of the Oldenburg family. He died Nov. 15, 1863.

Frederick VIII. was a son of Christian IX. and a brother of Queen Alexandra. He became king in 1906, and died in Hamburg, May 14, 1912. His wife was a daughter of Charles XV., king of Sweden, and he was succeeded by his eldest son, Christian X.

Frederick II. King of Prussia, called Berlin, Jan. 24, 1712, the son of Frederick William I., he soon showed that he possessed exceptional intellectual powers. For various reasons his father made his life a burden to him and in 1730 he tried to escape from court. This was prevented, and for some years he was little better than a prisoner. Then, the restraint becoming less pronounced, he married a princess of Brunswick, corresponded with Voltaire, read much French literature and wrote in that language *Anti-Machiavel*, an expression of his belief that a king must be the first servant of his people.

On May 31, 1740, Frederick became king, and almost at once made war on Austria. His aim was to obtain Silesia which was given to Prussia by treaty in 1742. The war was soon renewed, but when it was ended in 1745 the Prussian king was known as a very capable soldier, if a cynical politician. For the next eleven years he was able to put his ideas of paternal government into practice, but he also kept his army efficient for he foresaw a recurrence of war.

In 1756 the Seven Years' War began.

The odds against Prussia, aided only by Britain, were immense, but her king performed miracles both as general and administrator. In this period he earned the title of great, and a place among the masters of the art of war. His people, however, suffered terribly, and his country was utterly exhausted when peace was made in 1763. For the rest of his reign, ruling as an absolute monarch, he did a good deal to restore its prosperity, whilst, by sharing in the partition of Poland in 1772, he added more territory to Prussia. In 1778 he again made war on Austria and again enlarged his realm.

Frederick died, without sons, at Potsdam, Aug. 17, 1786, and his nephew, Frederick William II., followed him on the throne. The king wrote a great deal, always in French, and his writings have been published in 33 volumes, while further volumes are filled with his political correspondence. There are many *lives* of the king, notably the massive one by Carlyle to whom, in spite of his flagrant breaches of faith, Frederick was a hero.

Frederick Prince of Wales. The eldest son of George II., he was born Jan. 6, 1707, before his grandfather became King of Great Britain. In 1714 he was made Duke of Gloucester, and in 1729, Prince of Wales. He married Augusta, a daughter of the Prince of Saxe-Coburg, and was the father of George III. He is chiefly known because of his quarrels with his father which led him to make his house a kind of court for all who disliked George II. and Sir Robert Walpole. He died March 20, 1751.

Frederick Charles Prussian prince and soldier, called the Red Prince. Born Mar. 20, 1828, he was a grandson of King Frederick William III. and a nephew of William I. He entered the army, and in 1864 commanded the Prussians in the war against Denmark, and led an army in the campaign against Austria in 1866, winning fame at Sadowa. He commanded one of the three armies that invaded France in 1870, when he was again successful in the field, especially at Metz. In the intervals of peace he held several high commands. The prince died June 15, 1885. One of his daughters became the wife of the Duke of Connaught. His name of the Red Prince was due to the fact that he frequently wore the red uniform of one of the Hussar regiments.

Fredericksburg City of Virginia, U.S.A. It stands on the Rappahannock river, 60 m. from Richmond, is well served by railways and has some industries. Pop., 6000.

A great battle in the American Civil War took place near Fredericksburg in Dec., 1862. The Confederates, or Southerners, under Lee, were defending the road to Richmond, when the Northerners, or Federals, under Burnside, appeared on the N. bank of the Rappahannock. For about a month there was desultory fighting across the river. On Dec. 12, the Northerners made a crossing and seized Fredericksburg. A three days' battle ended in a complete victory for the Southerners. On Dec. 15, Burnside took his men back across the river, having lost over 12,500 men. The Southerners lost about 4000.

Frederick William Name of an elector of Brandenburg and four kings of Prussia.

FREDERICTON

The elector, Frederick William, called the Great Elector, began to reign in 1640, and ruled until his death, May 9, 1688. He was responsible for making Brandenburg much larger and stronger so that it became a power in Europe, and his son, Frederick, was able to obtain the title of king of Prussia.

Frederick William I. the second king of Prussia, reigned from 1713 to 1740. He is famous as the king who collected giants for his army, and was the father of Frederick the Great. **Frederick William II.** succeeded his uncle, Frederick the Great, in 1786, and reigned until 1797. His son, **Frederick William III.**, was king from 1797 to 1840. He led his people when they rose against Napoleon and was ruler during the European settlement that followed the peace of 1815. **Frederick William IV.** succeeded in 1840, but lost his reason in 1857. He lived until June, 1861, his brother William, afterwards emperor, acting as regent.

Fredericton Capital of New Brunswick, Canada. It stands on the river St. John, 80 m. from its mouth and 68 from St. John, its seaport. It is served by two branches of the C.N. Ry. The University of New Brunswick is situated here. The industries include lumbering and some manufactures, and there is some shipping along the river. At first named St. Ann's, Fredericton was made the capital in 1788. Pop. 8100.

Frederiksborg Palace of Denmark. It stands on some islands in a lake in Zealand, about 21 m. from Copenhagen. The early kings had a castle here, but the present building, which stands in a large park, was erected by Christian IV. about 1620. In 1859 it was largely rebuilt and is now a national museum.

Frederiksborg must be distinguished from **Fredericksburg**. The latter is a western suburb of Copenhagen where there is also a palace, now used for public purposes. It stands in extensive grounds, part of which are used as a zoological garden.

Freeboard In a vessel the distance between the upper or main deck and the load-water line. It should provide an amount of reserve buoyancy that will keep a ship afloat if two of its compartments have been holed.

Free Church Protestant evangelical communion that is not an established church. Based on individual freedom in matters of doctrine, church government and ministerial appointment, the free churches include the Congregational, Baptist and Methodist churches, the Presbyterian Church of England, the Free Episcopal churches, the Society of Friends and cognate communions abroad. The National Council of the Evangelical Free Churches holds an annual conference. Its headquarters are at the Memorial Hall, Farringdon Street, London, E.C.

FREE CHURCH OF ENGLAND. Religious body called also the Reformed Episcopal Church. It was founded in 1841 in Devonshire by some members of the Church of England who objected to High Church teaching. It is governed by bishops and has a small membership, chiefly in the W. of England.

FREE CHURCH OF SCOTLAND. Presbyterian communion. It was formed by members of the Established Church of Scotland who, claiming for parishioners the right of choosing their own ministers, seceded from the estab-

519

FREEMAN

lished church in 1843, the Rev. Thos. Chalmers being their leader. They formed a new church which was joined in 1876 by the Reformed Presbyterian Church, and was second only to the established church in numbers and influence. In 1900 the Free Church and the United Free Church of Scotland, and in 1930 there was a union of this body and the established church. Just before the union the Free Church had a membership of over 500,000. See SCOTLAND, Church of.

Free City City that is independent. A modern instance is Danzig, a free city since 1919. In the Middle Ages there were many free cities in Italy and Germany. These were part of the Holy Roman Empire, and owed allegiance to the emperor, but to no one else. In Italy they threw off, after a time, even this authority, but in Germany they remained imperial free cities until the dissolution of the empire in 1806. At one time there were nearly 100 of them, including such famous places as Nuremberg, Frankfurt and Augsburg. Gradually their number was reduced, as they were taken by one or other of the German rulers, until, after the Napoleonic wars, there were only four. Of these Frankfurt lost its freedom in 1866. Hamburg, Bremen and Lubeck continued free cities of the German Empire, and are now free cities of the German republic.

Freehold In England and other countries a form of holding land. It is the most complete form of ownership known to the law, and a freehold estate is one with the fewest possible burdens on it. Since the changes made in 1925 all land in England has been either freehold or leasehold.

Freeman One who is not a slave. A sharp distinction between freemen and slaves, this being the case in Greece and Rome, as well as among the Anglo-Saxon and other Teutonic tribes, the freemen forming the fighting and governing class. Gradually, as slaves became free, the distinction disappeared. In England a serf or villen could, among other ways of winning it, obtain his freedom by residing for a year and a day in a chartered town. By the end of the 15th century serfdom had entirely disappeared in Britain, and the word freedom had lost its special meaning. In other European countries the same process took place, but at a slower rate.

The word freeman was then used in England for a man who had the right to take part in the government of the city or borough in which he lived. These privileges were greatly abused, and in 1835 they were swept away, the municipal corporations being reformed. London, however, was an exception, and there freemen still remain and take part to a slight extent in the city's government. This freedom is usually obtained by heredity, or by apprenticeship, although the latter is only nominal, and all freemen are members of one or the other of the city companies.

A third kind of freeman came into existence in the 19th century. These are men of distinction, such as a Prime Minister or a leading soldier, who are given the honorary freedom of a city or borough, now a popular way of recognising distinguished services to the state.

Freeman Edward Augustus. English historian. Born at Harborne, Staffs., Aug. 2, 1823, he entered Trinity

College, Oxford, in 1841, being elected a fellow in 1845. His first published book was a *History of Architecture*, 1849, and he was a constant contributor to *The Saturday Review*. He made his reputation as an historian by his *History of Federal Government*, which he did not finish, and his *History of the Norman Conquest*. In 1884 he was made Professor of Modern History at Oxford, and he died March 16, 1892.

Freemason Member of a great international organisation. The earliest records of British freemasonry are in Scotland, but a much longer history is claimed for it, one going back to the days of the Greeks and their mysteries. There were societies, or lodges, in Scotland in the 16th century, the oldest being in Edinburgh. A little later there was a lodge in Newcastle-on-Tyne, and soon one or more in London. In 1717 four London lodges united to form the Grand Lodge of England. The Grand Lodge of Ireland dates from 1729, and the Grand Lodge of Scotland from 1736. From these lodges members have carried the ideas of freemasonry into all parts of the world inhabited by white men. The movement grew rapidly during the 19th century, and there are now nearly 4500 lodges on the register of the United Grand Lodge of England and a total membership in excess of 4,000,000.

The organisation consists of a number of lodges, each with its own officials elected by the members. Members are admitted very much as to a club, and many lodges are confined to men with similar interests or occupations. Each lodge has its master, treasurer, warden and secretary. Regular meetings and dinners are held, and at these a good deal of ceremonial is observed. Special robes and jewels are worn by the masters. The lodges are united under provincial Grand Masters, and abroad under district Grand Masters. Over all is the united grand lodge with the Duke of Connaught as grand master.

Apart from masons proper, who are called craft masons, there are other societies of masons, associated more or less closely with the parent body. Such include the Royal Arch masons, the Mark Masons and several others. The offices of the United Grand Lodge are in Freemasons' Hall, Great Queen St., London, where a fine building has been erected as a war memorial. The Scottish Grand Lodge has its headquarters at Freemasons' Hall, Edinburgh, and the Irish one in Molesworth St., Dublin. In Great Queen St., London, also, is the hall of the Grand Lodge of Mark Master Masons.

Freemasons are noted for their charities. There is a **Masonic Benevolent Institution** for assisting impoverished masons and their dependents. For orphans they maintain schools—at Bushey for boys and at Clapham Junction and Weybridge for girls. Similar schools are also supported by the Irish masons. In addition there are many other benevolent funds and associations maintained by the lodges in Great Britain and abroad.

Free Port Port at which no duties are charged on goods entering it. In the Middle Ages and later there were a number of such ports, but with the increasing use of tariffs they have disappeared. Some seaports, however, have a free port, to which goods are brought in order to be shipped and sent to another country. There is one at Hamburg and other European seaports have them. Flume is a free port.

Freestone Building stone, either a sandstone or limestone, which can be easily dressed by the hammer and chisel. Beer freestone from the middle chalk of Beer near Seaton, Devon, was much used in the old churches of Devonshire and is the restoration of Exeter Cathedral.

Freethought Term associated with disbelief in the Christian or any other religion. It came into use about 1700, and was a popular term in the days when Charles Bradlaugh was attacking Christianity, when, in the minds of most people, it was synonymous with atheism. Its adherents, however, assert that it does not imply necessarily hostility to any form of religious belief, but is simply the right to examine their beliefs in a scientific spirit, testing them by the accepted rules of evidence and declining to accept any document or tradition simply because it is classed as sacred. Freethought to-day is more generally known as rationalism (*q.v.*).

Freetown Seaport and capital of Sierra Leone, British W. Africa. It stands on the estuary of the Rokel river and has an excellent harbour. The port is connected by railway with the interior. Freetown, as the name suggests, was founded as a home for freed slaves. Pop. 44,000.

Free Trade Primarily the absence of restrictions on trade, especially between nations. The doctrine is due mainly to the teaching of Adam Smith's *Wealth of Nations*, which was popularised by Richard Cobden. Under it most goods are admitted into the country free of duty, but, if for revenue purposes, a duty is put upon any class of imports a corresponding tax must be put upon the same goods produced within the country. Great Britain was on the whole a free trade country from the days of Sir Robert Peel until the introduction of a Tariff in 1931-32, but the rest of the world, with insignificant exceptions, has refused to follow her example! See **IMPERIAL PREFERENCE**.

Free Will Idea that man can control his own actions, that they are not controlled by an external force or power. It is both a philosophical and a religious idea, and in both spheres there are two schools of thought. The philosophers who deny the existence of free will in man, who believe that every action is determined by some previous action and therefore ultimately by the forces that control the universe, are called determinists. In religion the great opponent of free will was John Calvin, whilst Arminius took the other side, and for long, religious bodies, especially Protestants, were sharply divided into Arminians and Calvinists. To-day the religious difference is much less prominent.

Freezing Point Temperature at which a liquid changes to the solid state. In the case of water it is 0°C. (32°F.). The freezing point is affected by pressure and, as in the case of water, expansion takes place on freezing, the increased pressure lowers the freezing point. The presence of a salt in the liquid also lowers the freezing point, which, together with the heat absorbed during the solution of the salt, explains the use of freezing mixtures of salt and ice.

Freiburg im-Breisgau City and Archi-

episcopal see of Germany. Situated in Baden, on the Dreisam, 40 m. N. of Basle, it has a university founded in 1457, and a fine Gothic cathedral of the 12th century. The manufactures include surgical and musical instruments. It has a broadcasting station (570 M.; 0.25 kW. Pop. (1925) 90,475.

Freight Term applied to the cargo of a ship, also to the charges for transport of goods by sea. Goods are grouped into four classes for transport purposes, the first class having the highest rate. In addition a special class includes all goods of a special or dangerous character, such as jewellery, cement or gunpowder. In the United States the word is much used in connection with goods carried by railway.

Fremantle Town and seaport of W. Australia. It stands at the mouth of the Swan river, 12 m. from Perth, and has a fine harbour. There are some manufactures, but shipping is the chief industry. A pleasure resort, Fremantle has several beaches for bathing, while a little farther away is the popular Point Walter. Electric tramways serve the town and district. Pop. 32,000.

French Africa Name given by decree in 1906 to the French Congo, Gabon, Ubangi-Shari and Chad colonies. The area is approximately 950,000 sq. m., and the population 3,127,000, with about 2500 Europeans. It exports ivory, rubber, timber, palm oil, coffee and cocoa. The annual rainfall in parts reaches 120 in. Much of the country is still undeveloped.

French West Africa. French colonial possession. It comprises the Ivory Coast, French Guinea, Dahomé, Niger, French Sudan, Senegal, Haute-Volta and Mauritania. The capital is Dakar, area 1,509,733 sq. m., and the population 11,344,066. The chief products are vegetable oils, timber, rubber and cattle. Cotton and cocoa are increasing in importance.

French Guinea See GUINEA.

French Polish Preparation used in producing a high polish on furniture woods. Shellac is dissolved in methylated spirit, colour being given either by using different grades of the gum resin or by adding pigments. The polish is rubbed on the wood, linseed oil being used to ensure smoothness of action.

French Revolution Movement that began in France in 1789 and exercised an enormous influence in Europe. The condition of the French people, especially in the rural districts, was very bad, the system of government being thoroughly corrupt. Power was concentrated in the hands of the king and the nobles, and on it there were no effective checks. The upper classes paid no taxation, which consequently fell with great severity upon the poor. The country's finances had got into a condition of hopeless confusion.

Side by side with this state of affairs, Voltaire, Rousseau and others were teaching the people new ideas, which, especially in the towns, found ready acceptance. Voltaire cast contempt upon the religious and other conventions which, hitherto, had helped many to acquiesce in their wretched lot. Rousseau preached the natural rights of man, and the idea of a state in which the general will was supreme. People began to see that there was no warrant, either in divine or human law,

for the hideous inequalities which prevailed on every side.

The actual movement began in 1789 when the States General, the nearest approach to a representative body existing in France, was called together, for the first time since 1614. When it met the commons, or third estate, called.

On July 14, 1789, the mob destroyed the Bastille, and there were risings all over the country. The tricolour was adopted as the flag of the revolution and talk of a republic began.

The National Assembly decided that all privileges should be abolished, and turned itself into an assembly for the preparation of a constitution. Many of the nobles fled to England and elsewhere, but the king still had many supporters, although he was little better than a prisoner.

In June, 1791, the king, Louis XVI., escaped from Paris, but was stopped at Varennes and brought back. The assembly then decided to make France a constitutional monarchy, but for several reasons this was not consummated. Several foreign rulers and large numbers of their subjects were not thoroughly alarmed at the course of events in France, and the exiled French nobles were urging them to interfere. Prominent here was the Emperor of Austria, a brother of Marie Antoinette, the wife of Louis XVI. With the King of Prussia, he had issued a declaration, demanding that France should restore Louis XVI.

The republican party, chiefly Jacobins and another group called Girondins were, however, gaining strength, and the efforts to bring about foreign interference only added to their influence. The outcome was that, in March, 1792, France declared war on Austria. Prussia hastened to the side of Austria, but in spite of riots and disorders, the French troops defeated the Prussians at Valmy.

A National Convention now took over the control of affairs, and the most terrible part of the revolution began. The extremists were now absolutely supreme, their leaders being Danton, Robespierre and Marat. A republic was established and on Jan. 21, 1793, after a trial, Louis was executed. Treaties with foreign countries were repudiated, and it was declared that France would help all Europe to overthrow their hereditary rulers. Thousands were put into prison. Meanwhile the republican armies were winning success after success.

In 1793 a Committee of Public Safety was established, Robespierre being its dominating spirit, and the Reign of Terror began. Hundreds of aristocrats and politicians were sent to the guillotine. On Oct. 16, 1793, Marie Antoinette was executed and then the autocrats turned on one another. Robespierre brought about the execution of Danton on April 5, 1794, and he himself suffered the same fate on July 28. The Reign of Terror came quickly to an end, but it was not until Oct., 1795, that the Directory was established, and the period described as that of the French Revolution was over.

The number of books written on the period is legion, but Carlyle's *History of the French Revolution* still stands out.

French Revolutionary Wars Wars caused by and contemporary with the French Revolution (q.v.). On April 20, 1792, Louis XVI. was compelled by his Girondist

ministers to declare war on Prussia and Austria. Early in 1793 Britain, Holland and Spain joined them in a coalition. Fighting against tremendous odds, the French armies overran Holland in the winter of 1791-95, compelled Prussia and Spain to withdraw (1795), under the command of Napoleon Bonaparte brought Sardinia (1796) and Austria (1797) to submission. The French attempt at an invasion of England was foiled by the British victories at St. Vincent and Camperdown (1797); while Napoleon's eastern campaign was frustrated by Nelson's victory in Aboukir Bay (1798) and Smith's defence of Acre (1799). The formation by Pitt of a second coalition (with Austria and Russia) was followed by the return of Napoleon to Europe, the withdrawal of Russia (1800) and Austria (1801), and the Peace of Amiens (March, 1802).

Frensham Village of Surrey. It is nearly 4 m. to the S. of Farnham. The common is used by the military, being convenient for Aldershot. On it are three mounds called the Devil's Jumps. Frensham is noted for its ponds, used for boating, bathing and fishing. There are two, the larger covering 90 acres.

Frere Sir Henry Bartle Edward. English administrator. Born at Clydach, Brecknockshire, May 29, 1815, he entered the Bombay Civil Service in 1834. In 1859 he was created K.C.B., for services rendered during the Indian Mutiny. Governor of Bombay, 1862-67, he was made a baronet in 1876. In 1877 he was appointed Governor of Cape Colony and as High Commissioner of British S. Africa, he was deputed to arrange the confederation of the S. African Colonies, but before attaining his purpose he was recalled in 1880, owing to a change of Government. Frere died May 29, 1884.

Fresco Method of painting upon a freshly prepared ground of stucco or plaster. Mineral pigments are used, with size, yolk or white of egg as a medium. Since the pigments quickly combine with the freshly made plaster, rapidity of work and considerable skill is necessary, as retouching is impossible. This method was the usual form of mural painting before the use of oil pigments, but if exposed to damp the colours were liable to fade. Among notable frescoes are those in the monastery of S. Mark, Florence, painted by Fra Angelico.

Freshfield Douglas William. English traveller. He was born April 27, 1845, educated at Eton and Oxford and in 1870 called to the bar. He was the first man to make the ascent, in 1868, of Mt. Kasbek in the Caucasus. During the next 30 years Freshfield visited many parts of the world and made himself one of the foremost travellers of his age. From 1893-95 he was President of the Alpine Club and from 1914-16 of the Royal Geographical Society. His many writings include *Round Kangchenjunga*, 1903, and *Below the Snow Line*, 1923. A promontory on the coast of King George V. Land, discovered in 1911, has been named after him.

Freshwater Watering place in the west of the Isle of Wight, on the Yar, 1½ m. from Yarmouth. Some distance from the village is Freshwater Bay. Pop. 3400.

Near Freshwater is Farringford, long the residence of Lord Tennyson. A landmark is High Down, 485 ft. high, on which there is a

memorial cross to the poet. Part of this is the property of the National Trust and has been renamed Tennyson Down.

Fresnel Augustin Jean. French scientist. Born, May 10, 1788, he became an engineer, later studying the subject of light. His work has been of great value in the development of lighthouses. He introduced the lenses named after him and was responsible for the first practicable revolving lights. He died July 14, 1827.

Fretwork In architecture, decorative consisting of geometrical designs in relief. In wood working, the term is used for the art of sawing out designs in thin, fine-grained wood, such as satinwood, walnut, sycamore, lime or three-ply wood. The essential tools are the saw, drill and Bradawl. The fretsaw consists of a light steel frame holding thin saw blades of varying grades of fineness.

Freud Sigmund. Austrian scientist. Born at Freiberg, Moravia, May 6, 1856, he was educated in Vienna and Paris. His investigations into neurotic diseases, early studies on hysteria and dreams, led to his becoming Professor of the Therapeutics of Neurotic Diseases and of Neurology in Vienna in 1902. He explained such phenomena as being influenced by repressions in the unconscious mind subconsciously seeking an outlet. His method of approach, called psychoanalysis, is propounded in many works, for example, *Delusion and Dream*, *Three Contributions to the Theory of Sex*, *Totem and Taboo* and in *The International Journal of Psycho-analysis*, edited by him.

Frey Norse god, also called Freyr. He was the god of sunshine and fertility and possessed a famous sword. In order to win the love of Gerda he gave away this weapon and so was conquered in his last fight.

Freyja In Norse mythology, especially in Sweden, the goddess of love and pleasure. Sister of Frey and wife of Odin she traversed the heavens in a chariot drawn by two white cats, and received at her Asgard home the souls of half those slain in battle. She is distinct from Odin's wife, Frigg.

Friar Member of a Roman Catholic mendicant religious order. Friars are not monks, although they take vows. The four great orders are Franciscans or Grey Friars, Dominicans or Black Friars, Carmelites or White Friars, and Austin Friars or Hermits. Trinity or Red Friars, 1198, and Crutched or Crossed Friars, 1169, were actually canons regular.

Friar's Crag Beauty spot on the banks of Derwentwater. It is on the east side of the lake, about a mile from Keswick. Since 1921 it has been the property of the National Trust. There is a Ruskin memorial.

Fribourg Town of Switzerland. It stands on the River Saône, 20 m. from Berne, and is the chief town of the canton of Fribourg. It has a university founded in 1889. Pop. 21,000.

Fricton Resistance to motion when two bodies in contact are moved over one another. Fricton may be sliding or rolling, the former being seen in the action of slide valves of engines, and the latter in wheels, ball or roller bearings. Static friction is the frictional resistance of a body at rest and is greater than the friction of motion, or kinetic

friction, when the body has been set in motion. The use of lubricants tends to reduce friction.

Frideswide English saint. Daughter of Didan, caldorman of Oxford under Ethelbald, she fled from a Mercian noble's importunities to Binsey and built an oratory. She died about 735. Her well is still visited. Becoming abbess of an Oxford nunnery, which was appropriated by Austin canons in 1004, she has been Oxford's patron saint since 1180 and was canonised in 1481. Her day, Oct. 19, which was removed from the calendar at the Reformation, is still commemorated locally. On the site of her chapel in Oxford, Wolsey erected Christ Church cathedral.

Friedland Town of Germany. It stands on the Alle, 26 m. from Königsberg, and is famous for the victory gained here by Napoleon over the Russians and Prussians, June 14, 1807. The battle was stubbornly contested, but in the end the French drove their enemies in flight across the river. Napoleon was present in person and Ney had a good deal to do with the French success. The Allies lost 20,000 men out of 55,000 on the field. The French lost fewer out of 70,000. The battle was followed by the Treaty of Tilsit.

Friedrichshafen Town and lake port of Württemberg, Germany. It stands on the Lake of Constance. It is a pleasure resort, but is chiefly famous as the headquarters of the Zeppelins, which were built here and made their trial flights over the lake. There is a harbour and steamers ply between the various places on the lake. Pop. 11,700.

Friendly Islands Group of islands in the Pacific Ocean, now called the Tonga Islands. They lie to the south-east of the Fiji Islands and cover 388 sq. m. They are about 150 in number, divided into three groups. Nukunono is the capital; copra is the chief product. The islands form a British protectorate, having their own ruler, a king or queen, assisted by a parliament or legislative council and a privy council and advised by the high commissioner. British coins and weights and measures are used. Tasman discovered the islands in 1643, but they were named by Captain Cook, when he visited them in 1773. They remained independent, until 1900, when they came under British protection. Pop. 26,000.

Friendly Society Voluntary organisation for the relief of members in time of old age, illness, unemployment or other contingencies. The root principle is that members contribute a certain sum, usually weekly, and in case of need receive certain benefits.

In Great Britain friendly societies were started about 1790 and an Act authorising these was passed in 1793. Other Acts followed, the last being in 1923, and now their activities are closely controlled by the state. Each society must be registered with the Chief Registrar of Friendly Societies, who examines its accounts. His offices are at 17 N. Audley Street, London, W.1, and in Scotland at 19 Heriot Row, Edinburgh.

The societies can issue insurance policies not in excess of £300, on the lives of their members, who can also insure the lives of their children and other dependents, but in the case of children the amount is limited to £15. They can also insure for burial expenses, sickness

and other matters. Members can dispose of sums not exceeding £100 by written nomination instead of by will. The societies can hold property and they enjoy freedom from income tax. Since 1911 they have had a good deal to do with the working of the National Health Insurance scheme. They do this work through approved societies formed by them.

The term friendly societies is used sometimes only for the Friendly Societies proper, such as the Independent Order of Oddfellows, but sometimes for all societies that come under the eye of the registrar, such as those associated with trade unions, the very strong group known as industrial insurance societies. Those, known also as collecting societies, employ paid collectors to visit the members and collect the premiums, usually weekly. The total invested funds of the friendly societies amount to over £100,000,000.

In Great Britain the largest societies are: Independent Order of Oddfellows (Manchester Unity), 97 Grosvenor St., Chorlton-on-Medlock, Manchester. Ancient Order of Foresters, 17 Russell Square, London, W.C. Royal Liver Friendly Society, Pier Head, Liverpool. Hearts of Oak Benefit Society, Euston Road, London, N.W. National Deposit Friendly Society, 37 Queen St., London, W.C. Independent Order of Rechabites, 1 North Parade, Deansgate, Manchester. United Ancient Order of Druids. Loyal Order of Ancient Shepherds, 132 High St., Chorlton-on-Medlock, Manchester. Grand United Order of Oddfellows, 24 Devonshire St., Manchester.

Friends, Society of See SOCIETY OF FRIENDS.

Friesland District of northwest Europe. Most of it is in the Netherlands, where it forms the province of Friesland, a low-lying district bounded by the North Sea and the Zuider Zee on the north and west and covering 1250 sq. m. Leeuwarden is the capital, and the province includes Terschelling and other islands. Many of the people speak the Frisian dialect. East Friesland is in Hanover where that country touches the Netherlands. Aurich is the chief town and it has an area of 1200 sq. m.

Frieze In architecture the portion of the entablature lying between the architrave and the cornice. It forms a continuous band, often sculptured in low relief. In the Doric Order the frieze is adorned with alternate projections (triglyphs) and recesses (metopes), the latter usually finely sculptured as seen in the famous Parthenon frieze. In the Ionic and Corinthian entablatures the frieze is devoid of triglyphs, but is enriched by figures in relief. Other types of friezes were developed in later architecture.

The use of the word has spread to a strip of ornamentation placed round the walls of a room, usually to harmonise with the paper.

Frigate Originally a small, swift, undecked Mediterranean vessel, using oars or sails. Adopted by Portugal in the 16th and 17th centuries for naval purposes in the Indies, it became a fast three-masted, full-rigged scouting and cruising craft, carrying from 24 to 50 guns on the main deck, or on a raised quarter-deck and fore-castle. The cruiser is the modern equivalent of the frigate.

Frigate Bird Genus of tropical sea fowl, *Fregata*, allied to the gannets. The common *F. aquila* has a small, slender, short-necked body, a straight bill with a hooked tip and a dilatable throat pouch. Its swallow-like tail and great wing spread make it very swift in flight. It eats fish caught at the surface or snatched from other birds.

Frimley Village of Surrey. It is 33 m. from London, on the S. Rly. It is in near proximity to Aldershot and three miles from Bagshot and is mainly residential. Bret Harte is buried in the churchyard. A colony for tuberculous ex-soldiers and sailors was inaugurated here after the Great War. Pop. 16,472.

Frinton Watering place and urban district of Essex. It is 2 m. from Walton-on-the-Naze and 69 from London, on the L.N.E. Rly. Of late it has become a fashionable seaside resort. Pop. (1931) 2196.

Frisian Islands Chain of islands off the west coast of Europe from Denmark to Holland. Long subjected to marine erosion, their diminution, observed since Roman geographers first described them, has been retarded in part by sand dunes, earthen embankments and dykes. There are north, east and west groups, respectively Danish, German and Dutch. The N. Frisians, mostly off N. Schleswig, include Fanö, Sylt, Föhr, Amrum, Pellworm and Nordstrand. The E. Frisians include Norderney, Borkum, Wangeroog, Spiekeroog and others, all favourite summer resorts and bathing stations. The W. Frisians include Rottum, Schiermonnikoog, Ameland, Terschelling, Vlieland and Texel, screening the Zuider Zee.

They derived their name from the Frisians, a Teutonic people inhabiting the neighbouring territory of Friesland early in the Christian era.

Frit Imperfectly fused mixture of minerals from which glass is made. Calcined until the silica begins to act on the bases, it awaits complete fusion. Similar vitrifiable mixtures occur in the manufacture of artificial or soft-paste porcelain.

The name is also given to a small, black two-winged fly destructive to cereal crops, especially European barley (*Chlorops frit*).

Frith William Powell. English painter. Born at Aldfield, Yorkshire, Jan. 9, 1819, he studied at the Royal Academy Schools and first exhibited in the R.A. in 1840. He was elected A.R.A. in 1844 and R.A. in 1852. His works represent historical and anecdotal painting, executed with extraordinary charm and attention to detail, yet preserving a broad effect. His *Derby Day* in the National Gallery, London, was his masterpiece, and many of his pictures achieved great popularity. He died Nov. 2, 1909.

Fritillary Word meaning a dice box. It is used for a genus of flowering plants and a species of butterfly. See BUTTERFLY.

Frobisher Sir Martin. English sailor. Born in Yorkshire about 1535, he made his first voyage to Guinea, before he was 20 years of age. In 1576 he set out on the first of his three unsuccessful voyages in search of a northwest passage to China. In 1586 he sailed as vice-admiral in Drake's expedition to the West Indies and in 1588 was in command of a ship that helped to defeat the Armada and so distinguished himself that he was knighted on board his own ship. He

took part in other expeditions and fights and died Jan. 14, 1595, as the result of a wound received during the attack on Brest.

Frodsham Market town of Cheshire. It is 10 m. from Chester, on the L.M.S. Rly. Chemicals and cotton are manufactured. Near the town the Weaver falls into the Mersey and the district around is known as Frodsham Marshes. Pop. 3000.

Froebel Friedrich. German educational reformer. Born at Oberweisbach, April 21, 1782, he studied at Jena and Göttingen and in 1816 opened a school. His influential book translated as *The Education of Man*, appeared in 1826, and from 1833-37 he spent his time training teachers at Burgdorf in Switzerland. In 1837 he started a school for young children in which his theories were put into practice. He died June 21, 1852.

Froebel held that children should grow up naturally, in happy surroundings, that play was of the utmost importance and that a child's natural creativeness should be encouraged. His ideas were largely adopted in England and a *Froebel Society* was founded to forward them. Its headquarters are at 4 Bloomsbury Square, London, W.C.1. There is also a National Froebel Union at 18 Adam St., London, W.C.2.

Frog Genus of amphibians, (*Rana*). Of the tailless order, it also includes toads and is widely distributed in temperate and tropical regions. The eggs, usually laid in fresh water, adhere together in jelly-like masses. They develop into tailed, legless tadpoles which breathe aquatic air through gills. There is then a gradual growth into the four-legged tailless adult form with lungs for breathing atmospheric air. Through soft skins, which are periodically shed entire, moisture is imbibed. The tongue, rooted in the front of the mouth, is sticky and used for seizing the slugs and insects upon which it feeds.

Besides the common *R. temporaria*, the edible *R. esculenta* and the N. American bull frog, are the large guppy frog, 8½ in. long, of the Solomon Islands and the goliath frog, 11 in. of the Cameroons. Other genera include horned, flying, peeping, pouched and tree frogs.

Frog In engineering, two short pieces of rail. They are joined together to form an angle between the railway lines at a railway crossing or at a point where the rails lead to a siding, serving to guide the wheels of a train from one set of lines to another. When used at a crossing the contrivance is termed a cross frog.

Frogbit Small, floating aquatic herb (*hydrocharis morsus-ranae*). Native to Europe and N. Asia, it has roundish, kidney-shaped leaves, reddish beneath, which support the male and female flowers on separate plants. The bulbs sink to the pond floor in the autumn, rising to the surface again to throw out leaves in the spring.

Frog Hopper Family of homopterous insects (*Cercopidae*). The greyish or greenish adults have four stiff opaque wings and hind legs strengthened for vigorous leaping. They constantly prick the young leaves for sucking. The pricks enlarge and wither the leaves. The larvae surround themselves with white froth. See CUCKOO-SPR.

Frogmore Residence near Windsor. It is in Windsor Park, about a mile from the castle and became a royal residence in the time of George III. The

mausoleum here was built by Queen Victoria over the tomb of Prince Albert and here the queen herself was buried in 1901. The building is open to the public at stated times.

Froissart Jean. French historian. Born at Valenciennes about 1338, he went to England at the age of 18 and entered the household of Edward III.'s queen, Philippa. After a leave of absence that lasted five years, he returned to her in 1361, bearing with him a rhymed chronicle of the wars of the time, and was made her secretary. He travelled considerably through England, France, Flanders and Italy, gathering material for his great history. After Philippa's death he became curé of Lestines in Flanders, and later Canon of Chimay. Again in 1386 he travelled, visiting Gaston Phoebus, Count of Foix, and then England once more. He died about 1405 at Chimay.

Froissart lives to-day in his *Chronicles*, a history in four books of the main events of Western Europe from 1325 to 1400. It is one of the greatest historical works of that period, being an invaluable and vivid description of the life of his time. It was translated into English by Lord Berners in 1525 and there are several later translations.

Frome Market town and urban district of Somerset. It is on the River Frome, 24 m. from Bristol, on the G.W. Rly. The industries include printing and brewing; woollen cloth is manufactured, but this is less prosperous than formerly; there is also an agricultural trade. Pop. (1931) 10,738.

Fronde French word meaning a small sling and used for the civil war that took place in France between 1648-1653. The first Fronde was due to a quarrel between Mazarin and the Parliament of Paris about taxation. Some of the leaders of the parliament having been put into prison, street fighting broke out. Helped by troops under the great Condé, Mazarin put down the rising and peace was made in March, 1649.

The second Fronde was a rising in 1652-53. Condé and Mazarin had quarrelled and the former, with other princes, raised a revolt. He was soon victorious and for a short time master of Paris. The fighting, however, was chiefly in the south-west of the country and in the end Mazarin put down the insurgents and attained his object.

Frontenac Comte de French statesman. Louis de Buade was born in 1620, of a family holding land in Beaug. He became a soldier and in 1672 went to Canada as governor. He remained there until 1682 and was again governor from 1689 to 1698. Frontenac died in Quebec, Nov. 28, 1698. His methods of rule were somewhat autocratic, but he ranks as one of the makers of Canada.

Frost Term used for the deposition of small ice crystals on exposed objects on or near the ground. Sometimes known as hoar frost it is due to the freezing of water which condenses out of the atmosphere on objects which have a temperature below that of freezing point. When prolonged severe frosts may have a harmful effect upon vegetation, and even a short frost, coming in late spring or early autumn, may injure crops. Frost plays an important part in the disintegration of rocks and the formation of soils.

Frostbite is the name given to a localised inflammation and gangrene of the tissues, caused by extreme cold.

Froth or Foam. The collection of small bubbles caused by fermentation or by boiling or agitating a liquid.

• The Ancient Order of Froth Blowers was a charitable organisation formed in 1923. Its song was "The more we are together, the happier we shall be."

Froude James Anthony. English historian. Born at Dartington, Devon, April 23, 1818, he was educated at Westminster School and Oriel College, Oxford, becoming a Fellow of Exeter College in 1842. His first work, *Shadows of the Clouds*, appeared in 1847, under the pseudonym Zetia; then came, in 1849, *The Nemesis of Faith*, which was widely read, but, like most of his books, raised controversy. His greatest work is his *History of England from the Fall of Wolsey to the Spanish Armada, 1566-70*, a fine piece of writing but distinctly unreliable. He also wrote *Lectures on the Council of Trent* and other books dealing with events of the 16th century. Other works include *The English in Ireland, Oceana, or England and her Colonies*, the most popular of all, *Short Studies on Great Subjects* and *The Life and Letters of Erasmus*. Froude was very intimate with Carlyle, but much controversy followed his books on Carlyle and his wife. In 1892 Froude was chosen Professor of Modern History at Oxford, but he died shortly afterwards, on Oct. 20, 1894.

Fruit Part of a flowering plant that contains the seed, especially such as is used for human food.

It may be divided into tree fruit, such as apples, and bush fruit or small fruit, such as strawberries. It may also be classified as pip fruit, *e.g.*, oranges, apples, pears, melons and medlars; stone fruit, *e.g.*, plums, cherries, apricots, peaches and dates; berries *e.g.*, currants, strawberries and raspberries; or seed fruit, *e.g.*, walnuts. Grapes belong to the berry class; bananas and pineapples are allied to it. It may further be divided into fresh fruit which will only keep for a few days and preserved fruit, which may be either tinned, bottled or dried, such as figs and raisins.

Fruit is a popular and important article of food, especially in hot weather and hot climates. It contains much water, but also acids which are good for health. Sugar is an important content and many fruits, the orange for instance, contain vitamins. Fruit is essential for good health, and it plays a great part in keeping the body in good condition.

The grape is cultivated on an enormous scale in the warmer part of the world. Oranges are largely grown in the Mediterranean region for export. California, South Africa, British Columbia and Australia are great fruit-growing countries, much of it being tinned for export. Figs, raisins and other fruits are dried and exported from Greece and neighbouring lands; also from Australia. Great Britain imports much tinned and dried fruit, but of the harder fruit a good deal is produced at home, especially in the counties of Kent, Worcester and Hampshire. In all, some 94,000 acres are under small fruit. In addition there are many apple and cherry orchards and in Somerset, Devon and Hereford a special kind of apple and pear is grown for making cider and perry. The blackberry still grows wild on a considerable scale.

To encourage the growing of fruit at home various measures have been adopted by the Ministry of Agriculture, such as the establishment of stations for grading and packing of

fruit. Much of it is bottled, so that it can be kept for winter use and a great deal is made into jam. There are factories for canning fruit at Wisbech and Paddock Wood in Kent. Certain fruits, among them apples and pears, must bear the national mark to show that they have been grown at home. Dried fruits imported from the Empire are given a preference as regards import duties.

A statid for research into fruit storage problems has been opened at East Malling, Kent, and experiments have shown that it is possible by the use of carbon dioxide to keep fruit fresh for a long period.

The chief English market for fresh fruit is Covent Garden. Thence it passes into the shops of the fruiterers or greengrocers. The Fruiterers' Company is one of the London livery companies.

Fry Charles Burgess. English athlete. Born at Croydon, April 25, 1872, he was educated at Itepton, Oxford, where he excelled as an athlete. He represented his university at cricket, athletics and Association football and held the world's record for the long jump. Afterwards he played cricket for Sussex and for years was one of the leading batsmen in the country. In 1900 he scored 3147 runs and he played for England on several occasions. Fry devoted his energies to training boys for the sea and conducted an establishment at Hamble. He has written books on cricket and on the League of Nations, and has come forward as a Liberal politician.

Fry Elizabeth. English prison reformer. Born in Norfolk, May 21, 1780, the daughter of John Gurney, the Quaker banker, in 1800 she married Joseph Fry and settled in London. In 1813 she visited Newgate Prison, and, horrified by the terrible conditions, at once set to work to reform them. An association was started and under her guidance a great deal of good was accomplished. Mrs. Fry, who brought up a large family, died Oct. 12, 1845, at Ramsgate.

The family to which Joseph Fry belonged is known for its association with the cocoa business in Bristol. This was founded in the 18th century by an earlier Joseph Fry, who died in 1787.

Fryatt Charles. English sailor. He was born at Harwich, Dec. 2, 1872, and entered the mercantile marine. When the Great War broke out he was captain of the G.E.R. steamer *Brussels*, plying between England and Holland. On March 28, 1915, he succeeded in ramming a German submarine, and the following year was captured by a German destroyer, tried by court martial at Bruges and shot, July 27, 1916. Later his body was brought to England and buried at Dovercourt.

Fuad King of Egypt. A son of Ismail, the Khedive, he was born in Cairo, March 26, 1868. In Oct. 1917 he became Sultan of Egypt in succession to his brother, Hussein, and in 1922 he was made the first king of the country.

Fuchsia Genus of flowering shrubs and small trees, named after the 16th century botanist, Leonhard Fuchs. There are some 50 species, mostly natives of Mexico and the Andes region. Since Kew gardens first received *F. coccinea* in 1788, many other species have reached Britain, yielding hardy and half-hardy varieties, including dwarfs, with crimson, violet, coral, cream and white blooms.

Fuchsin Coal tar derivative also known as magenta or roseine. It consists of rosaniline hydrochloride and is an important direct dyestuff for wool, silk and leather, and, with a mordant, for cotton. It occurs as brilliant iridescent crystals which form a deep red solution in water and are also very soluble in alcohol.

Fuegians S. American Indian tribes inhabiting Tierra del Fuego. The Yagans of the centre are a stunted primitive race who use wind shelters, and bone and shell implements. The tall Onas of the East are descendants from Patagonian immigrants; the western Alakalufs come from Chilean Arancarians.

Fuel Any combustible materials used as a source of heat. All fuels consist largely of some form of carbon or of hydrocarbon. Coal is the most important solid fuel, but other carbonaceous material such as peat, wood, straw and vegetable waste are largely used. Petroleum, the chief liquid fuel, is the source of many fuel derivatives, and in addition oils distilled from coal, shale and other substances are used in oil engines of the Diesel type.

Gaseous fuels include natural gas, coal gas, water gas, producer and blast furnace gases. Of recent years much has been done to use fuel resources, particularly coal in this country, more advantageously. Pulverised fuel is largely replacing ordinary coal, and extensive plants have been erected for the carbonisation, under careful control, of that material whereby the maximum quantity of certain desired products can be obtained. Attempts have been made to commercialise the production of refined oil-fuel (petrol) from coal, and recently a mixture of oil and finely powdered coal has been used with success. The government has a Board of Fuel Research and maintains at Greenwich a Fuel Research Station, which has laboratories at Stoke, Glasgow, Nottingham, Newcastle-on-Tyne and elsewhere. In 1931 a world fuel conference met in London.

Fuenterrabia City of Spain. It stands on the Bidasoa, near its mouth, 10 m. from San Sebastian, on the railway line from Paris to Madrid. The old town, still surrounded by its walls, has a castle and other buildings dating from the Middle Ages. Near it is a new town, a fishing centre and a watering place. Pop. 5000.

Fuentes d'Onoro Village of Spain, 15 m. from Ciudad Rodrigo and near the frontier of Portugal. Here, on May 3-5, 1811, a battle was fought between the British and the French. Wellington was trying to take Ciudad Rodrigo and a French army came to relieve it. The result was indecisive, but the French had somewhat the better of the encounter.

Fugger Famous German family of traders. They lived at Augsburg, where Johann Fugger became a banker and merchant about 1390. The business was carried on by his sons, grandsons and other descendants and its members became enormously wealthy. They had interests all over Europe and later in America, and lent money to the Emperor Charles V. and other rulers. There are memorials of the Fuggers in Augsburg (q.v.).

Fugue Form of musical composition. Its essential condition is the development of a melody, from four to eight bars in length, announcing the subject. This is done

by each voice, or part, in turn, being immediately taken up by another, which is called the answer. To this the first part supplies an accompaniment. J. S. Bach was a master of the fugue. Handel and Mozart also made good use of it.

Fugue is also used as a psychological term, signifying a "wandering attack," due to the activity of the unconscious mind.

Fujiyama Loftiest mountain of Japan. Situated on the main island, 60 m. south west of Tokyo, overlooking Suruga Bay, it is 12,395 ft. high. An extinct or quiescent volcano, it has a crater 2000 ft. across and 500 or 600 ft. deep, which is now filled with water. The last eruption occurred in 1707. It is a sacred mountain and many Buddhist pilgrims ascend each August to pray at rock-built shrines. It is also known as Fujisan.

Fulda City and river of Germany. The city stands on the Fulda, being in the Prussian province of Hesse-Nassau, 69 m. from Frankfurt. There are some industries and an agricultural trade. The city had a university from 1734 to 1804. Fulda is famous for its abbey, founded in 744 by Boniface and once one of the richest in Europe. Pop. 17,500.

Fulgurite Name given to a vitreous tube in sand due to the action of lightning in fusing the loose sand grains together. These tubes are sometimes more than two inches in diameter and in the blown sand of Cumberland extend to a depth of 40 feet and near Macclesfield to 22 feet.

Fulham One of the 28 boroughs of the County of London. It lies along the Thames on the north side with a very long frontage to the river and includes the district of Parson's Green. The chief building is Fulham Palace, the residence of the bishops of London. The courtyard dates from the 15th century; the main building from the 18th. Part of the grounds, Bishop's Park, is open to the public. There is a large power station here. In the borough are the football grounds of the Chelsea and Fulham clubs.

Fulham ware is a fine stoneware which was first made at Fulham by John Dwight. It is remarkable for the brilliancy of its colour. Pop. (1931) 150,940.

Fuller Name given to one engaged in fulfing or milling woollen cloth. The process of fulfing is carried out on heavy materials for overcoats and suitings to cause the yarns to shrink and felt together. The material, after being soaked in soap and water, is twisted into a rope and passed through vertical rollers, and whilst still in a wet state, it is stored to complete the shrinkage along both the warp and the weft.

Fuller Thomas. English divine and author. Born at Aldwinkle, Northants, in 1608, he was educated at Cambridge. He was chaplain to the king's forces during the Civil War and held in succession several livings, including that of Cranford in Middlesex, where he is buried, but he is chiefly known by his books. He wrote *The Church History of Britain*; but his wit is seen to better advantage in *The Worthies of England*. He died in London in Aug., 1661.

Fuller's Earth Soft, dull, greenish-brown or grey variety of clay. It consists of impure hydrous silicate of alumina. Unlike ordinary clays, it falls to a powder in water, lacking plasticity. It is still used as an absorbent for grease, although

not so much to-day as formerly, also in oil filtration. It is used medicinally for irritated skins. It is worked at Nutfield, in Surrey, also near Bath and at Woburn.

Fulminate Word meaning to explode and used in that sense by scientists. Fulminate of mercury is a powerful explosive used in percussion caps and detonators. Fulminic acid is found with mercury and other metals, but never alone.

Fulton Robert. American engineer, born in 1765, in Pennsylvania. He worked on canal improvements and then conceived the idea of using steam engines for driving ships. He worked on this in Paris and eventually in 1803 built a small steamship on the Seine. He then returned to America and built another which he called the *Clermont*. This and its successor, the *Fulton*, made successful voyages on the Hudson and their invention marks a stage in the history of the steamship. Fulton died Feb. 24, 1815.

Fulwood Urban district of Lancashire. It is just outside the borough of Preston and its industries are those of that town. Pop. (1931) 7387.

Fumigation Method of disinfection by the use of fumes or gases. In cases of contagious diseases, fumigation is carried out for disinfecting the sick room and the clothes, etc., of patients, and may be done by means of burning sulphur, often in the form of a sulphur candle which gives off sulphur dioxide. Paraform, a solid form of formaldehyde, is a powerful fumigant for rooms. Fumigation is also resorted to by gardeners for destroying insect pests upon plants. For this smoke, sometimes tobacco smoke, is used.

The extremely poisonous gas, hydrocyanic acid, is used for fumigating ships' holds and also for fruit trees, especially in America and the vapour of carbon disulphide is used to fumigate maize, grain elevators, etc.

Fumitory Small annual plant (*Fumaria officinalis*). It is common in fields and waste places. The rose-coloured flowers are borne in loose, erect spikes upon slender brittle stems bearing much divided leaves. The plant has a somewhat bitter saline taste and was used formerly as a medicinal herb in eye and skin diseases.

Funchal Capital of the Madeira Islands. Situated on the south coast of Madeira Is. It is a salubrious winter resort. Steamships anchor in the roadstead, which is protected from all but south winds. There is a substantial trade in coal and wines. It has a broadcasting station (24M.; 0.05kW.). Pop. 19,000.

Fundamentalism Religious movement in the U.S.A. It arose about 1910 when a number of Christians in Tennessee and other states decided to require from those professing their faith the acceptance of the fundamental doctrines of Christianity, not only the virgin birth, the atonement and the resurrection, but the verbal inspiration of the Bible.

Fundy Bay of. Opening of the Atlantic Ocean, off the coast of Canada. It penetrates about 100 m. into the land and divides Nova Scotia from New Brunswick. It receives the St. John and other rivers. The bay is divided into two parts called Chignecto Channel and Minas Channel. Grand Manan Island stands at the entrance of the bay, which is noted for its high tides.

Fünen Island of Denmark, also called Fyen. It is in the Baltic Sea between Jutland and Zealand, with the Little Belt on one side and the Great Belt on the other. 1130 sq. m. In area, its soil is fertile and agriculture flourishes. The chief river is the Odense, and Odense is the name of the chief town.

Fungus Large group of the lowest division of cellular plants, the thallophyta. They are distinguished by an absence of chlorophyll and starch and the special characters in their structure and life history. The plant body, or mycelium, consists of a much branched mass of filaments, or hyphal, sometimes forming false tissues, the cell walls being composed of fungus cellulose.

In their nutrition, unlike green plants, fungi obtain their food materials from dead or living organic matter, and consequently some are parasites, such as rust and mildews, others are saprophytes, living on decaying matter, as represented by toadstools and mushrooms. Fungi have no flowers, but reproduce by asexual spores or, in some, by a sexual process. Some are edible, especially the mushroom; others are highly poisonous.

Fur Undercoat of short, fine, soft hair, intermingled with longer overhair, found on the skin of certain animals. It is used for clothing in very cold countries and largely used elsewhere in cold weather, especially by women. The animals chiefly valued for their fur are the musquash, chinchilla, ermine, skunk, mink, wolverine, sable, beaver, seal and bear. The skins of the mole, fox, rabbit and squirrel are also used.

Most of these animals are caught in the wild state in Canada and Siberia and to a lesser extent in Australia, but foxes are now bred for the purpose on special farms. After being taken, the skins need careful preparation. The chief fur market is London. The Hudson Bay Co. has for over 200 years been engaged in the fur trade in Canada, which was long a source of livelihood to the Indians.

Furies The. (Latin, *Furiae*). Goddesses of ancient Greece and Rome. They are represented as snake-haired and it was believed that they were sent from Tartarus to punish the crimes of perjury, murder, etc. They are also known by the Greek names Erinyes and Eumenides.

Furlough Leave of absence. The term denotes specifically the absence from military duty of the rank and file by permission of the commanding officer for periods exceeding six days on full pay; passes may be endorsed with permission to wear civilian clothes.

Furnace Structure for the production of heat. It is employed in chemical and metallurgical processes and in steam boilers. Many kinds of furnaces are in use, from the simple hearth to the electrical furnace. Usually the inner part of the structure is lined with some refractory material, while the outer part is strengthened to give stability.

Combustion depends upon a supply of air; in the hearth type this is usually a natural draught, whilst in others some form of forced draught is necessary, i.e., in the shaft furnace of the blast and cupola types. In the reverberatory furnace for roasting ores the draught is carried over the heated material. The crucible, muffle and retort furnaces are of the closed vessel type and are used in many

metallurgical and allied processes. In some, solid fuel is used, in others gas is employed, while furnaces using the electric arc are necessary for very high temperatures.

Furness District of Lancashire. In the north-west of the county, it is divided from the main part by Morecambe Bay. The district contains great quantities of iron ore and this has led to the growth of Barrow-in-Furness. The Furness Rly. is now part of the L.M.S. system. Furness covers about 250 sq. m.

Furness Baron. English shipowner. Born April 23, 1852, Christopher Furness entered business life and in 1877 established at West Hartlepool his own line of steamers. This became the great firm of Furness, Withy & Co., and later he was associated with others of the large industrial undertakings of Durham. In 1895 he was knighted and in 1910 was made a peer. He had been Liberal M.P. for Hartlepool, 1891-95 and 1900-10. He died Nov. 10, 1912. His son, Marmaduke, who succeeded to his title, was made a viscount in 1918.

Furness Abbey Ruined abbey in Furness, Lancashire. Near Dalton-in-Furness on the L.M.S. Rly., it was founded in 1127 and was, until the Reformation, a great and wealthy Cistercian abbey. The parts remaining are considerable and preservation work has been done since they became national property in 1920. The remains include part of the chapter house, the cloisters and the chapel.

Furniss Harry. British caricaturist and writer. He was born at Wexford in 1854 and came to London at the age of 19. In 1880 he joined the staff of *Punch*, to which paper and *The Illustrated London News* he contributed illustrations for many years. As a humorous lecturer he toured America and Australia, and in 1894 founded a weekly paper, *Like Joke*. He also illustrated the works of Dickens and Thackeray and wrote a number of books, including *Confessions of a Caricaturist*, 1901. He died Jan. 16, 1925.

Furniture General term denoting equipment. It designates specifically the movables and fittings disposed for use or ornament in a dwelling or other building.

From its prehistoric beginnings the development of furniture has involved incessant change in material, form and use. The convenience of raised surfaces for the various demands of work and repose, and of enclosed receptacles for holding things, was recognised at the outset. Hence the history of style gathers round that of the table, stool, bedstead and chest. Ornament was utilised from the first, as in the carved or moulded animal feet of Babylonia and Egypt. A 20th century development is the much greater use of glass and the introduction of steel tubes in place of wood.

Of furnishings in Anglo-Saxon, Norman and Mediaeval England, including wall hangings and floor coverings, little remains. The furniture styles of the modern world date from the Renaissance. The revived interest in period furniture concerns chiefly the sequence characterised as Tudor, Jacobean, Stuart, Queen Anne, Georgian and Victorian, with their continental contemporaries, notably Louis XIV., XV., and XVI., Directory and Empire. Some produced outstanding craftsmen, e.g., Chippendale, Sheraton, Adam and Boulle have given their names to distinctive styles of furniture.

The furniture-making industry is a large one, its chief English centre being London. Much of it is turned out by mass production, but the better pieces are made by hand, often being copies of old models.

There are fine collections of old, or period, furniture in the Victoria and Albert Museums, as well as in the Wallace Collection. The selling of antique furniture is a large business, many shops existing for this purpose, though not all the pieces offered are genuine.

Furnivall Baron. English title. Created in 1295 for Thomas de Furnivall, it has since been held by several families. Thomas Neville and John Talbot gained the title through marriage. Later John Talbot became Earl of Shrewsbury, which title was held by his successors until 1616. After a period of abeyance, it descended to the daughter of the 7th earl in 1651, who, marrying the Earl of Arundel, caused it to be linked with the Howard family. Again in 1777 it became extinct, until, in 1913, it was revived for Mary Frances Katherine Petre, daughter of the 14th Baron Petre, and a descendant of the Howard family.

Furtwaengler Wilhelm. German musician. Born in Berlin, Jan. 25, 1886, the son of Adolf Furtwaengler (1853-1907) the archaeologist, he early gained a musical reputation and while yet a young man conducted operas and concerts at Breslau, Zurich, Munich, Strasbourg, Lubbeck, Mannheim, Berlin, Frankfurt and Vienna. In 1922 he became Director of the Berlin Philharmonic Concerts, and from 1922 to 28 directed Gewandhaus concerts at Leipzig. He conducted the Philharmonic Orchestra in New York, 1925-27, and Philharmonic concerts in Vienna, 1927-30. He has also conducted in London.

Furze Genus of spiny, leguminous plants (*Ulex*). They are native to central and western Europe and north-western Africa. The common species (*U. europaeus*) also called gorse or whin, grows from 2 to 6 ft. in height, has terminal spines besides branched spines on the stems and bears sweet-scented, two-lipped yellow flowers. The young shoots serve as fodder, the old stems as fuel.

Fusan Town and seaport of Korea. It stands at the south-eastern end of the peninsula and is connected by railway with Seoul. It has a good harbour with ample accommodation for modern shipping and under Japanese rule its trade has developed greatly. Pop. 106,300.

Fuse Device for igniting an explosive charge, such as a hollow tube filled with combustible material, one form being the quickmatch used for instantaneous firing. In heavy blasting operations, the charges are now usually fired by electricity.

The term is also used for an electrical safety device for breaking a circuit automatically when the current becomes too heavy.

Fusilier Name first given to a soldier who carried a fusil, which was a light musket fitted with a flint lock. The name first appeared about 1640 and in the 17th century the French and other armies organised companies of fusiliers to protect the artillery. Later the practice was abandoned and with the change in the nature of firearms the fusiliers became ordinary infantrymen. The name is retained in the British and other armies, and certain regiments are still called

fusiliers. In the British Army these are distinguished by a bearskin cap. The oldest of them is the Royal Fusiliers (City of London Regiment). Others are the Royal Scots Fusiliers, the Royal Inniskilling Fusiliers and the Royal Welch Fusiliers. The Royal Munster and Royal Irish Fusiliers were disbanded after the World War.

Fusion Process of melting a solid such as metal by the application of heat. The melting is accompanied by an absorption of heat, which is converted into kinetic energy, and by a change in volume. The degree of fusibility of metals varies greatly, from the melting point of solid mercury (-39° C.) to that of tungsten (3267° C.).

Fust Johann. German printer. A goldsmith of Mainz, he entered into partnership with Gutenberg in 1450, to found a printing press, which he financed. In 1455 they separated, and Fust set up another works with Peter Schoeffer. The chief production of the first press was the *Mazarin Bible*, and of the second, a *Latin Psalter*. Fust died of the plague in Paris in 1466.

Fustian Stout cotton fabric, used chiefly for men's wear. It may be a plain, twilled jean or a short-napped, velvet-like cloth, also called corduroy, moleskin or velveteen. Similar cut fabrics were made of wool under Edward III., and early forms had cotton wuffs and linen warps. It is produced also in Spain and Italy, the fustian of Naples being renowned. It apparently originated at Fustat, near Cairo.

Future In business a word meaning goods not yet on the market. There is a good deal of buying and selling of futures, especially in N. America, principally in cotton and wheat, though Liverpool is the largest centre for "futures" in the former commodity. They are, of course, highly speculative transactions.

Futurism Form of art which arose in Italy about 1910. It was due to the influence of the poet F. T. Marinetti, upon a group of Italian artists, amongst whom were Balla, Boccioni, Carrà, Rossetto and Severina. Marinetti and his disciples repudiated the older ideas of art, and claimed that the new movement introduced into painting a dynamic state, whereby a picture not only depicted a scene, but also indicated the emotions and ideas of the artist together with the thoughts and mental state of the person portrayed. An exhibition of futurist paintings was held in Paris in 1911 and in London in 1912.

Fylde District of Lancashire. Situated between the estuaries of the rivers Ribble and Wyre, it is mainly an agricultural area.

Fyne Inlet of Argyllshire. It extends S.W. and S. for 44 m. from the loch head, 6 m. above Inveraray, to the Kyles of Bute. Vessels using the Crinan Canal traverse it to Lochmiphead. Its branches form Loch Turbot, Loch Gilp, Loch Shira and Loch Gair. Loch Fyne herrings fetch high prices in the fish markets.

Fyvie Village of Aberdeenshire. It has a station on the L.N.E. Rly. 38 m. from Aberdeen, and was once a burgh. Here is Fyvie Castle, one of the finest houses in Scotland, restored on a grand scale by Lord Leith of Fyvie. It occupies the site of a castle built in the 12th century or earlier.

GABA TEPE Hill in Gallipoli. On April 25, 1915, whilst the main British force was being landed on the beaches of Gallipoli, the Australian and New Zealand corps landed near Gaba Tepe in order to create a diversion. After fierce fighting the hill was captured from the Turks. See GALLIPOLI.

Gabelle French word for a tax on any commodity. It was gradually limited to the tax on salt. Imposed in 1286, and made permanent by Charles V. (1364-80), its unequal incidence made it unpopular, and the grievance rankled until its abolition during the Revolution in 1790. In some Eastern countries the word is still used for a tax on salt.

Gabes City and port of Tunis. It stands on the Gulf of Gabes, an opening of the Mediterranean Sea, and is about 200 m. from the city of Tunis. Nearby are enormous salt lakes. Its ancient name was Tacape. Pop. 20,000.

Gable Pointed or triangular part of the outer wall of a building, at the end of the steeply pitched roof of the Gothic style. It corresponds to the pediment of classical architecture. In many examples of secular Gothic buildings, in Belgium for example, the gable end of the roof is adorned with numerous pinnacles, and ornamented barge-boards are added to the decorative design. Fine examples of ornamented gables are seen also in Tudor buildings.

Gaboriau *Emile*. French novelist. Born at Sauton, Nov. 9, 1833, he was the originator of a certain type of sensational crime fiction. His first book of this kind, *L'Affaire Lerouge*, 1866, was instantly successful and was dramatised in 1872. Other works are *Le Dossier No. 113*, 1867, and *Monsieur Lecog*, 1869. He died, Sept. 28 1873. His imaginary detective, Lecog, was the first detective of fiction.

Gabun River of Africa; also a French colony there. The river falls into the Atlantic Ocean by an estuary 40 m. long and 10 m. wide. Near its mouth is Libreville, the capital of the colony, which is one of the four divisions of French Equatorial Africa. Its area is 104,320 sq. m. Pop. 389,000.

Gad Name of several Biblical characters:— (1) Jacob's seventh son by Zilpah, Leah's handmaid. He founded an Israelitish tribe, localised chiefly in Gilead; David's eleven men of Gad were traditionally famous (1. Chron. xxi.). (2) Prophet who was David's early companion and counsellor (2. Sam. xiv.).

Gadara Ancient town of Palestine. Situated 6 m. S.E. of the Sea of Galilee, in the Syrian Decapolis, it was a Greek city. Captured by Antiochus III. in 218 B.C., it was rebuilt by Pompey, 64-63 B.C. Its ruins adjoin the modern village of Umm Kails.

Gad Fly Two-winged insect, *tabanus bovinus*, belonging to the order *diptera*. It is about 1 in. in length, is of a blackish colour above and reddish beneath and on the sides of the abdomen. Its larvae

live in damp soil. The female gad fly is a blood sucker, and is particularly troublesome to horses and cattle in hot weather.

Gad's Hill District in Kent. It is 2½ m. from Rochester, on the Gravesend road, and was the scene of Falstaff's encounter with "rogues in buckram" in Shakespeare's play, *I. King Henry IV.*, in which a character called Gadshill appears. Charles Dickens lived in Gad's Hill Place, near the Sir John Falstaff inn.

Gaekwar Hereditary title borne by the rulers of Baroda, India. It comes from a native word meaning cow, and is the family name of the dynasty that has ruled since about 1720.

Gael Member of the Gaelic branch of the Celtic speaking peoples. The Gaels, who arrived in Scotland and Ireland from the continent of Europe, used an older form of speech characterised by the Q sound, which survives in Erse, or Irish Gaelic, Scottish Gaelic, and Manx. A younger form, using P, appears in Welsh, Cornish, and Breton, which are not Gaelic tongues.

The term *Gaelic* is used for the national speech, literature, customs, etc., that are peculiar to the Gaelic peoples in Ireland and the Scottish Highlands. In both countries efforts are being made to keep alive the language and to maintain, or revive, an interest in Gaelic things, and societies exist for this purpose. Some of the universities have professorships and lectureships in Gaelic. In Ireland the government of the Irish Free State has done a good deal to make Erse, or Irish Gaelic, a compulsory language. In Scotland about 10,000 people speak Gaelic only.

Gaff Light form of fishing spear or landing hook. It consists of a stout rod ending in a fork or hook, and is employed in salmon fishing, although its use is prohibited at certain seasons on the Tweed and other rivers.

The term gaff is also applied to a kind of boom or spar used for extending the upper end of a sail, and to the topsails above the mainsail.

Gainsborough Market town, urban district and river port of Lincolnshire. It stands on the Trent, 18 m. from Lincoln and 146 from London, on the L.N.E. Rly. Machinery is manufactured and there is a good deal of trade in agricultural produce by canal or along the river. A fair is held twice a year. An acre or boro comes up the Trent here twice a day. Gainsborough is described as S. Oggs in George Eliot's *Mill on the Floss*. Pop. (1931) 18,684.

Gainsborough *Thomas*. English painter. Born at Sudbury, Suffolk, in 1727, he was self-educated until at the age of 14 he came to London. In 1745 he married and settled at Ipswich. He moved to Bath in 1759, and there successfully practised portrait painting, but in 1774 returned to London and took a house in Pall Mall. In 1768 he was elected an original member of the Royal Academy. He died Aug. 2, 1788.

Gainsborough's paintings show a remarkable lightness of touch and luminosity of colour. He is remarkable both for his portraits and his landscapes. Of the former may be mentioned,

The Market Cart and The Harrest Waggon, and of the latter, *Mrs. Siddons and The Blue Boy* (which latter in 1921 was sold by the Duke of Westminster for £150,000).

Gairdner Lake of Australia. It is in the south of the state of South Australia, and is a salt water lake. It is about 100 m. long, and its extreme breadth about 40 m.

Gairloch Opening of the Atlantic on the west coast of Scotland. It runs for about 6 m. into the county of Ross and Cromarty. At its head is the village of Gairloch, a tourist resort.

Galahad Knight of King Arthur's Round Table. Son of Lancelot and Elaine, he was reared by nuns, and knighted on his arrival at Camelot on the eve of Pentecost. He set forth on the quest of the Holy Grail, and to him alone, as the knight of purity, was vouchsafed the vision of the mystic cup from which Christ drank at the Last Supper. Malory and Tennyson tell the story, and G. F. Watts has painted him.

Galapagos Group of volcanic islands in the Pacific. They belong to Ecuador, and were officially renamed the Colon Archipelago in 1892. Situated on the equator, about 500 m. west of Ecuador, the 13 islands bear the names of English buccanniers, including the largest, Albemarle, 1650 sq. m. and Charles, the oldest settlement. The fauna and flora contain many peculiar species. Giant tortoises formerly abounded, Galapagos being the Spanish for tortoise. Cattle and fruits introduced by early colonists are now naturalised. Guano, sulphur, sugar products, and archil are exported. The area is 2868 sq. m. Pop. (1931) 2000.

Galashiels Burgh and market town of Selkirkshire. It stands on Gala Water, 33 m. from Edinburgh, on the L.N.E. Rly. It is a centre of the woollen industry, its tweed being famous. Pop. (1931) 13,102.

Galatea In Greek legend a sea nymph, a daughter of Nereus and Doris. She loved a beautiful Sicilian youth Acis, son of Faunus, who was slain by his unsuccessful rival, the Cyclops Polyphemus.

Galatea was the name given to an ivory statue fashioned by Pygmalion, the sculptor king of Cyprus, who successfully besought Aphrodite to endow it with life.

Galatia Old name of a district in Asia Minor. It was named from the Galatae, a Gaulish people who settled therein about 300 B.C. They came soon under Greek influence, and later some of them became Christians. At the time of Augustus, Galatia became part of the Roman Empire.

Galatians Epistle to the. Ninth book of the New Testament. In it the apostle Paul vigorously deplores the wholesale defections from Gospel freedom among his Galatian readers in favour of Jewish formalism.

Galatz Town and river port of Rumania. It stands on the north side of the Danube, about 80 m. from Bucharest. It has large docks. Pop. (1930) 101,148.

Gala Water River of Scotland. It rises in Midlothian, and flows S. from the Moorfoot hills, for 21 m. through Roxburghshire and Selkirkshire. It joins the Tweed just below Galashiels.

Galba Roman emperor. Servius Sulpicius Galba was born in 3 A.C., and became a soldier. He held many important positions, being praetor in the year 20 and consul in 33; he was governor of Gaul, later governor of Africa, and later still governor of Spain, showing ability both as soldier and administrator. In 68, on the murder of Nero, his troops declared him emperor, and he marched to Rome. He was murdered in 69.

Galen Greek physician. He was born about A.D. 130 at Pergamum, and studied medicine in Greece and Egypt. About 163 he went to Rome, where he was made physician to the emperors Marcus Aurelius and Commodus, and to many eminent Romans. He died in 200, either in Sicily or his native Pergamum. Galen wrote a great deal on medicine; and though most of his writings have been lost, those that remain were studied by medical men for centuries, and proved him to have been, after Hippocrates, the greatest of Greek physicians.

Galena Chief ore of lead. It is a sulphide of the metal and occurs, in veins and pockets, in rocks of many formations, associated with quartz, fluor, and ores of copper, zinc and silver. Its cubical, lead-grey crystals with a metallic lustre, contain 86 per cent. of lead and usually some silver.

Galicia District of Europe. It is to the north of the Carpathians, and since 1919 has been a part of Poland. It is rich in oil and salt. Lemberg is the chief town, and the Bug, Dniester, Pruth, and other rivers pass through it. Its area is about 30,000 sq. m.

Galicia Former kingdom of Spain. Situated north of Portugal, the kingdom comprises the modern provinces of Coruña, Lugo, Orense, and Pontevedra, occupying an area of 11,000 sq. m. The name is retained by the district which is traversed by the Minho and other streams, and the indented coastline includes the harbours of Ferrol, Coruña, and Vigo. The Gallegos are a hardy people devoted to agriculture and fishing. Their dialect forms, with Portuguese, a branch of Romance speech distinct from Castilian Spanish.

Galilee Roman province of Palestine in New Testament times. It lies north of Samaria and west of the Jordan, its capital being Tiberias. It was Christ's home in boyhood, and witnessed much of his active ministry. A Neanderthal skull was unearthed there in 1925, proving it to have been occupied in prehistoric times. It now forms part of the district of Palestine mandated to Britain.

A cathedral porch of unusual size is called a Galilee porch.

Galilee Sea of. Lake of Palestine (alternately named after Tiberias, Chinnereth, and Gennesaret). An expansion of the Jordan, 13 m. long by 8 m. broad, it has an area of 64 sq. m., and lies 680 ft. below the Mediterranean level, having a maximum depth of 150 ft. Like the Dead Sea, it is a rift depression with tropical vegetation. Eastward the hills of Bashan, 2000 ft. high, cause sudden and violent storms (Matthew viii., xiv.). Tiberias and Capernaum, on its shores, then densely populated, were the scene of much of Christ's ministry.

Galileo Italian astronomer. Born at Pisa, Feb. 18, 1564, he entered the university there, became a professor, and made some valuable discoveries in physical science, but was soon compelled to resign. In

1592 he became Professor of Mathematics at Padua, where he remained until 1610, when he moved to Florence. He died in Florence, Jan. 8, 1642, and is there buried.

Galileo erected a telescope, and so was able to discover the satellites of Jupiter, and some spots on the sun. After further observations on the heavens, he declared that the Copernican system of the planets moving round the sun was true; as this gave offence to the Church, however, he withdrew it—but only for a time. In 1632 he stated it again in his great Latin work on the solar system, and was in consequence put in prison. The Pope released him, and he continued his astronomical work almost until his death, although for 5 years he was blind. Galileo's discoveries place him in the front rank of the world's scientists.

Gall Nut-like outgrowth on the gall oak, *quercus tinctoria*. It is often known as an oak apple. Galls, the result of the attacks of the gall fly, contain about 40 per cent. of tannic acid and 5 per cent. of gallic acid; these acids form, with iron salts, dark blue or black compounds, hence the use of galls in ink manufacture.

The word **gall** is also a name given to the bile secreted by the liver; and for a sore on a horse's back, the result of chafing.

Galle Seaport of Ceylon. It stands on the south-west coast of the island and at one time was its chief port. Its full name is Punta Galle. Pop. (1931) 38,424.

Galleon Large Spanish vessel of the 15th-17th centuries. With a lofty stem and stern, and often with three or four gun decks, it served both for warfare, as in the Spanish Armada, and for transporting treasure from the Indies.

Gallery In architecture a passage constructed in the upper part of a building, and giving a view of the lower part of the interior. Later the term was extended to any large room of greater length than breadth. In the Norman castle the great hall often had a gallery surrounding it, and in later times the gallery accommodated the family paintings and works of art. Another form of gallery is the minstrels' gallery. Galleries are present in many mediaeval churches, and wooden ones became common after the Reformation.

The word is now used for a building to hold a collection of pictures, as the National Galleries and National Portrait Galleries in London, Edinburgh, and elsewhere.

Galley Long, narrow boat propelled by oars. Such vessels were largely employed in the Mediterranean until the 16th century. They had, as a rule, about 50 oars, each worked by six men, usually captives or convicts. A galley is now the six-oared boat on a warship, devoted to the captain's use. The word is also used for the place on a vessel where the cooking is done.

The term is used in printing for the wooden or metal frames used for receiving the type after it has been set. Proofs taken from this are called **galley proofs**.

Galliard An old dance for two persons. In triple time. It was very popular in the 16th and 17th centuries. The minuet is said to have sprung from it.

Gallican Church Branch of the Roman Catholic Church in France. Of 3rd century origin, it persistently rejected ultramontanism, refusing to submit the temporal state and its head to

papal control. Its liberties were defined by the pragmatic sanctions of Louis IX., 1269, and Charles VII., 1438, and by the declaration of the clergy drawn up by Bossuet in 1682, which Napoleon I. embodied in a statute in 1802. The Concordat, established in 1801, terminated in 1905, and the Gallican Church is no longer a state establishment.

Galli-Curci Amelita. Italian singer. Born in Milan, Nov. 18, 1890, her pure soprano voice was largely self-trained. She made her debut as Gilda in *Rigoletto* in Rome, 1909, and has appeared at the Chicago Opera House and the Metropolitan Opera House, New York. In 1924-25 she toured Great Britain, where she had previously attained a great reputation on the strength of her gramophone records.

Gallieni Joseph Simon. French soldier. Born at St. Réat, April 24, 1849, he saw service in the Franco-Prussian War and also in Senegambia, the Sudan, and Indo-China. As Governor of Madagascar, 1896-1905, he proved himself a great administrator. Appointed Military Governor of Paris at the outbreak of the Great War, his plans substantially assisted towards the victory of the Marne. He died May 27, 1916, and was posthumously made a Marshal of France, 1921.

Gallipoli Peninsula of south-east Europe. It is part of the Turkish Republic, but is in the zone that is ruled by a commission under the League of Nations. The peninsula lies between two openings of the Aegean Sea, the Gulf of Saros and the Dardanelles, and its importance is due to its position on the way to Samsun. The most important places are Gallipoli, a small seaport, and Kilit Bahr.

GALLIPOLI CAMPAIGN. In 1915, soon after Turkey had entered the World War as an ally of Germany, the Allies decided to force a way to Constantinople. A fleet entered the Dardanelles, but was unable to make much progress, and suffered severe losses. It was then resolved to proceed by land through Gallipoli. A British army, called the Mediterranean Expeditionary Force, was assembled in Egypt and the islands of the Aegean under Sir Ian Hamilton. It included Australian and New Zealand troops, and numbered about 120,000 men. A French force was also assembled, but the British were entrusted with the main attack, the French making feints on the other side of the peninsula.

On April 25, 1915, the troops landed at several places on the peninsula. The losses were fairly heavy, as the Turkish resistance was stubborn, and progress was difficult. The Turks had positions, strongly fortified, on the hills, and from these hard fighting could not dislodge them. The struggle centred chiefly around Krithia under Achi Baba at the Aegean end, and at Gaba Tepe (q.v.), called Anzac, where the Australians and New Zealanders were assembled. A little assistance was given by the French on the Dardanelles side of the peninsula, but after three months the campaign had failed to achieve its object.

In August fresh forces were collected, and another landing was made. These new troops got ashore at Suvla Bay and attacks were made elsewhere, but there was no considerable success. The British forces could do nothing but hold on under climatic and other conditions which tested their moral and physical stamina to the very utmost. Towards the end of the year it was decided to evacuate Gallipoli, and

on Jan. 6-8, 1916, this was done, almost without loss—a remarkable feat of arms. The British lost over 33,000 men, and some 7000 were reported missing.

Gallium. Hard, white, sectile and malleable metal. It was discovered in 1875 by Leccoq de Boisbaudran in zinc-blende from Pierrefitte in the Pyrenees. Its symbol is Ga, atomic weight 69.9, and melting point 86° F. It softens by pressure of the fingers, and once melted remains in liquid form at low temperatures.

Galloway District in the south-west of Scotland, consisting of the counties of Kirkcudbright and Wigtown. The Mull of Galloway is the most southern point of Scotland and on it is a lighthouse and some ancient remains. Galloway is famed for its breed of horses and its hornless cattle, and is associated with the story of the Covenanters.

The title of **Earl of Galloway** has been borne by the family of Stuart since 1623. The earl's eldest son is called Lord Garlies.

Gallows Wooden frame used for executing sentence of death by hanging. It is formed of two upright posts and a cross-beam, from which depends the execution rope; or, of a single upright with a projecting beam. The latter form served more particularly for the gibbet, upon which bodies of criminals, after execution, were suspended.

Until 1868, gallows were erected in public places, as at Newgate and Tyburn. See EXECUTION.

Gall Stones Hard concretions formed in the gall bladder. Also called biliary calculi, they may comprise the crystalline substance called cholesterol, or bile-pigment encrusted with cholesterol or lime salts. Colour varies from golden-brown to white. There may be several hundreds gravel-sized, or a single stone sometimes as big as a goose's egg. Usually arising from catarrh of the bile passages, bile-sand is deposited and gradually massed and encrusted. Sedentary occupations and over-eating are predisposing causes. See BILE.

Gallus Roman emperor. Trebonianus Gallus first became prominent as the leader of a Roman army in the region of the Danube. After Decius had been killed in battle in that area, in A.D. 251, Gallus was proclaimed Emperor. He made peace with the Goths and marched to Rome. In 253 he was killed by his own soldiers.

Galston Burgh and market town of Ayrshire. It is on the River Irvine, 5 m. from Kilmarnock, on the L.M.S. Ry. There are some industries, and in the neighbourhood are coal mines. Pop. (1931) 4601.

Galsworthy John. English author. Born at Coombe, Surrey, in 1867, he was educated at Harrow and New College, Oxford. He became a barrister in 1890, but gave his time to literary work, and as John Sinjohn published some tales and a novel called *Jocelyn*, 1898. During the next 30 years he made his way steadily into the front rank, winning distinction both as a dramatist and novelist and to a lesser degree as poet and essayist. His honours include an honorary fellowship at his old college and the Order of Merit. In 1931 he was Romanes Lecturer at Oxford.

Galsworthy's plays deal largely with social problems, and include *The Silver Box*, *Strife*,

Loyalties, *The Skin Game*, *The Pigeon*, *Escape*, and many others.

As a novelist his great work is the stories written about the family of Forsyte, a series of books which depicts the history of several generations of an imaginary London family. Beginning in Victorian days, they trace the family history up to the disturbed period of the war and after. These books and tales appeared at first separately, but they have been collected into three large volumes entitled *The Forsyte Saga*, *A Modern Comedy*, and *On Forsyte Change*. Other novels are *The Island Pharisees*, *The Freelanders*, *The Dark Follies*, *The Country House* and *Maid in Waiting*.

Galt City of Ontario, Canada. It is 24 m. from Hamilton, and is situated on the Grand River, in an agricultural district. It is an industrial centre, having flour and woollen mills, and iron works, for which electric power is supplied by Niagara Falls, and is served by the C.N. and C.P. Ry's. The city is named after John Galt. Pop. 13,200.

Galt John. Scottish novelist. Born in Ayrshire, May 2, 1779, he went to London in 1803. In 1809 his business took him to the Continent, and on his return he took to writing for a livelihood, but met with no great success until *The Ayrshire Legends* came out in 1820; it was followed by *The Annals of the Parish*, *Sir Andrew Wyllie*, and others. In Canada, 1826-29, he founded the town of Guelph, and he continued writing, publishing *Laurie Todd*, *A Life of Byron*, and an *Autobiography*. He died at Greenock, April 11, 1839.

His son, **Sir Alexander Tilloch Galt** (1817-93), was a prominent politician between 1849 and his death.

Galton Sir Francis. English scientist. Born at Birmingham, Feb. 16, 1822, a cousin of Charles Darwin, he was educated at Birmingham and Trinity College, Cambridge. He graduated in medicine, but did not practise. After travelling in unexplored parts of S. Africa, he wrote *Narrative of an Explorer in Tropical S. Africa*, 1853, and *The Art of Travel*, 1855. In 1863 he produced *Meteorographica*, notes on meteorology, but his fame rests on his studies in heredity. He wrote *Hereditary Genius* and the more popular *Inquiries into Human Faculty*, and made possible the use of finger-prints for detecting criminals. In 1901 he endowed a professorship for the study of eugenics at the University of London, and he also established a laboratory for the same purpose. In 1909 he was knighted, and he died on Jan. 17, 1911.

Galtymore Mountain of Ireland. In the county of Tipperary, it is the highest summit of the Galtee range, having an altitude of 3015 ft.

Galvani Luigi. Italian physiologist. Born at Bologna, Sept. 9, 1737, he became a professor at the university there, and investigated, chiefly by experiments on frogs, his theory of animal electricity, on which he wrote a treatise *On the Force of Electricity in Muscular Movement*, 1791, thus becoming one of the pioneers of the science of electricity. He died Dec. 4, 1798. The galvanometer perpetuates his name.

Galvanising Process of coating iron or steel with a thin film of zinc. This is done by dipping the iron into a bath of molten zinc, ammonium chloride (sal ammoniac), being used as a flux to promote the union of the two metals. The process was

invented in 1742 by the French chemist, Jean P. Malouin. Galvanised iron or steel withstands the action of air and moisture better than thinplate; hence its use for wire, tanks, and roofing.

Galvanometer Instrument for the strength of electric currents or the potential difference in a circuit. In its simplest form, as in the linesman's detector, a magnet, fitted with a pointer, is supported in the centre of a coil of one or more rounds of wire. The magnetic needle is deflected in proportion to the strength of the current.

Galveston City and port of the United States. In the state of Texas, it stands on an island at the entrance to Galveston Bay, and is connected with the mainland by a causeway over 2 m. long. Galveston's main industry is shipping, a vast quantity of cotton being exported. Pop. (1930) 52,938.

Galway Seaport, market town, and urban district of the Irish Free State; also the county town of Co. Galway. It stands on Galway Bay, and is 130 m. from Dublin, on the G.S. Rlys. Shipping and fishing are among the industries, which also include flour milling, marble polishing, and distilling. Pop. (1926) 14,300.

The Irish title of Viscount Galway has been borne since 1727 by the family of Monckton-Arundell. In 1930, Serlby Hall, near Bawtry, long the family seat, was sold.

Galway County of the Irish Free State. In the province of Connaught, it covers 2370 sq. m., and is the second largest in the country. With a coastline of about 400 m. on the Atlantic, it is famed for its wild and mountainous scenery of extraordinary beauty, and the Aran Islands, Connemara, and Joyce's Country. There are many lakes, the largest being Lough Corrib.

Galway is an agricultural county, cattle being reared and potatoes and oats grown, but many of the inhabitants are fishermen. Limestone and marble are quarried. Galway is the county town, while others are Tuam, Ballinasloe, Loughrea, Clifden, Athenry, Gort, and Clonfert. Pop. (1926) 169,400.

Galway Bay, between the counties of Clare and Galway, is 30 m. long and 22 m. broad. The Aran Islands protect it from the sea.

Gama Vasco da. Portuguese navigator. Born at Sines about 1160, he became a sailor, and in 1497 attempted the difficult voyage round the Cape. He succeeded, and crossed the Indian Ocean to Calicut, where he established a settlement, returning to Portugal in 1499. An attempt was made to establish a colony at Calicut, but the natives rebelled and Gama was sent to quell them, returning to Portugal in 1503. In 1521 there were more native atrocities at Calicut, and Gama again voyaged there and re-established Portuguese prestige, but died at Cochin on his return journey, Dec. 24, 1524.

Gamaliel Jewish rabbi who taught the Apostle Paul (Acts xxii.). He was noted for his tolerant spirit towards our Lord's disciples. Although his conversion to Christianity is only a legend, he appears in the saints' calendar on Aug. 3.

Gambetta Léon. French statesman. Born at Cahors, April 2, 1838, he studied law in Paris, but turning to politics was elected to the Chamber of Deputies in 1869. An ardent republican he became,

after the emperor's surrender at Sedan in 1870, Minister of the Interior and of War in the Government of National Defence. He escaped in a balloon from Paris, and at Tours did a great deal to rouse France to action against the invading Germans. In 1871 he founded the newspaper *La République Française*, and his efforts to strengthen the new republic have made him regarded, rightly, as one of its founders. He was elected President of the Chamber in 1879, and from 1881-82 was Premier. He died Dec. 31, 1882, as the result of a pistol accident.

Gambia River of West Africa, which gives its name to a British colony. It rises in French Guinea, and flows into the Atlantic Ocean near Bathurst. It is 500 m. long and much of its course is navigable.

The British Protectorate of Gambia is a district with an area of 4130 sq. m., and includes the colony of Gambia (crown colony, 1888), consisting only of St. Mary's Island, 4 sq. m. in extent. Ground nuts, palm kernels and hides and skins are the chief exports.

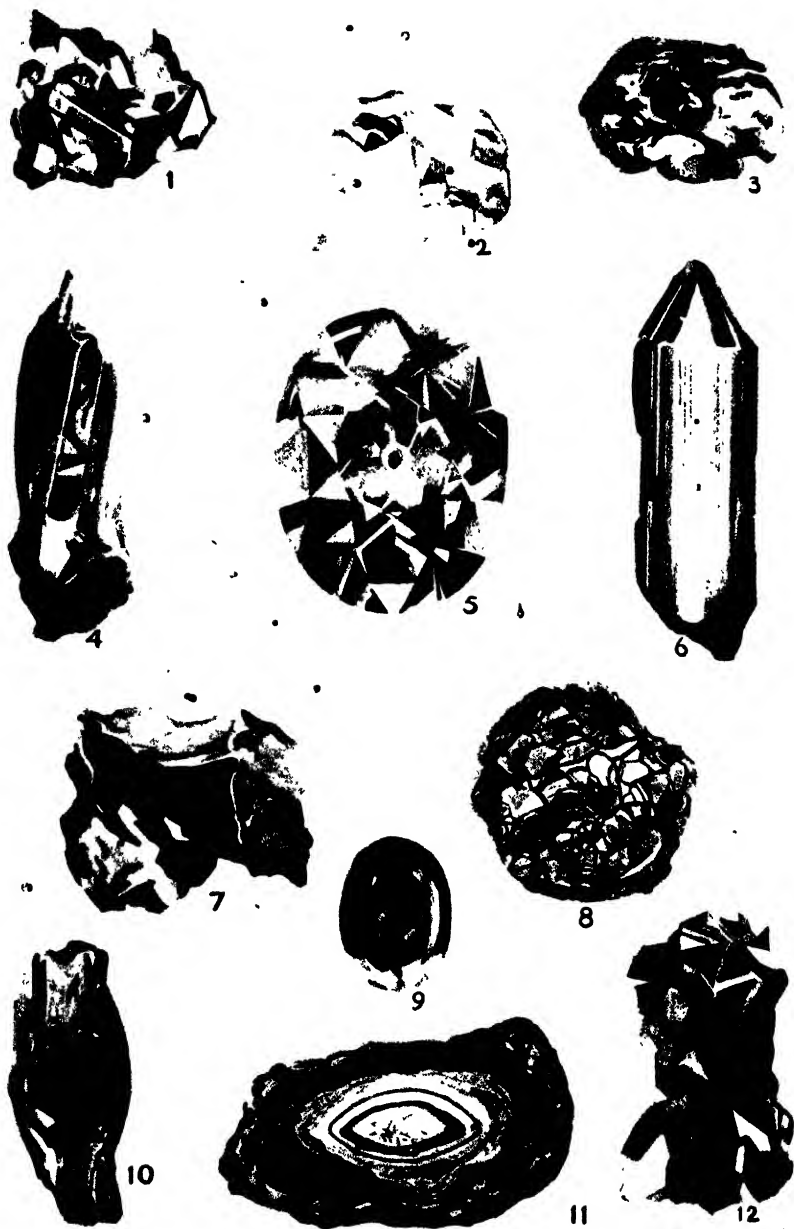
Gambier Baron. English sailor. Born at New Providence, Bahamas. Oct. 13, 1756, James Gambier joined the navy at the age of 11, and received rapid promotion. He distinguished himself in command of the *Defence* on June 1, 1791, and next year became one of the Lords of the Admiralty. He commanded the fleet which bombarded Copenhagen in 1807, and for that was raised to the peerage. In command of the Channel fleet in 1809, he refused to support Lord Cochrane in his attempt to destroy the French fleet in the Basque Roads by fireships. For this he was court-martialled, but was acquitted. He died April 19, 1833.

Gambling Staking money on a sporting of which is undecided and uncertain. It is done chiefly in connection with horse, dog, and other forms of racing, but also on games of chance, especially with cards. Players staking money on a game in which skill plays a part (billiards, bridge or golf, for example) are not, however, gambling—the definition should be confined to pure chance.

REGULATIONS AND CONTROL. In every country and in every age gambling has been prevalent. In Great Britain the law on the subject is conflicting and obscure; persons cannot recover in a law court any debt incurred by gambling; agreements dealing with it cannot be enforced; persons who keep gambling houses, or persons who take bets in the street, are liable to fine and imprisonment, but on the other hand the licensing of book-makers and the establishment of totalisators on racecourses have given a certain amount of legality to the practice. The position with regard to lotteries and sweepstakes is equally obscure, and the law is publicly flouted every day. See SWEEPSTAKE.

Gamboge Yellow gum resin, obtained by incision from the bark of a tree, *garcinia cambogia*, and other species growing in Ceylon and Siam. Gamboge forms a bright yellow, but fugitive pigment. It is used as a watercolour, and is employed in medicines as a purgative.

Game Name used for certain wild animals which are hunted or shot, and to their flesh when used as food. These include in Great Britain hares, pheasants, partridges, red grouse, black game, and bustards. For some purposes the law makes rabbits, snipe,



ELIZABETH BRIDGE

GEMS AND PRECIOUS STONES.—1. Beryl. 2. Ruby. 3. Sapphire. 4. Emerald. 5. The Koh-i-nur Diamond (cut and polished). 6. Topaz. 7. Lapis Lazuli. 8. Turquoise. 9. Opal. 10. Garnet. 11. Agate. 12. Amethyst.

and woodcock game. Tigers, lions, and other wild beasts, hunted in India and Africa and elsewhere, are called **Big Game**. Game fowls are fowls of a special kind, bred for their fighting qualities.

GAME LAWS. In Great Britain many laws have been passed to protect game, and under these very severe punishments were at one time meted out. This severity has now been mitigated to some extent, but it is still an offence to take or shoot game without the consent of the owner of the land. It is also an offence for anyone to shoot or hunt game on Sundays, Christmas Day, or during the close season (a period, fixed by law, during which the species must be left unmolested in order to breed). See **CLOSE TIME**.

Gamete Biological term for the cell which takes part in reproduction. Typically gametes consist of the ovum, a comparatively large cell containing food material, and the spermatozoon, smaller and frequently active. The individual bearing the former is the female, the latter, the male.

Gamma Rays One of the emanations from certain radioactive substances. They include electromagnetic waves more penetrating than X-rays and of smaller wave length. They are given out by some forms of radium, thorium and actinium.

Gamut Musical term. It is a scale consisting of the six notes called *ut, re, mi, fa, sol, la*. The name comes from the Greek letter gamma, and *ut*, the first note of the *sol-fa* scale, later called *do*.

Gandak Name of two rivers of India. The **Great Gandak** (also called the **Salagrami**), rises in the Himalayas and flows for about 400 m. in a south-easterly direction until it falls into the Ganges near Patna. The **Little Gandak** also rises in the Himalayas, and takes a very similar course until it joins the Gogra.

Gandhi Mohandas Karamchand. Indian Nationalist. Born in India, Oct. 2, 1869, he studied law in London, and then returned to practise as a barrister in Bombay. In 1893 he was in S. Africa, where he led his fellow countrymen in their opposition to the legislation directed against them. His methods were successful, and he became known as a leader of the nationalist movement, which gained a good deal of strength after the World War.

In 1919, Gandhi acted as the spokesman of those who objected to British rule in India, and was soon recognised as their leader. He organised a boycott of British goods, and started the movement known as non-co-operation. In 1922 he was arrested for sedition and sentenced to a term of imprisonment; but in 1921, having still four years to serve, he was released. After a period of quiet he renewed his agitation in 1930, his violent speeches, in which he urged the expulsion of the British from India, leading again to his arrest. He was, however, soon released, and at Delhi he made an agreement with the Viceroy, promising, in return for a large measure of self-government for India, to call off the boycott. In spite of this, he continued to make demands for India which to Englishmen seemed impossible. In 1931 he came to London to attend the Round Table Conference, but was arrested and imprisoned shortly after his return to India. To his followers Gandhi is the *mahatma*, or master.

Ganges River of India. It rises in the Himalayas, having its source in a cave in the state of Garhwal, 14,000 ft. above sea level. It is first called the **Bhagirathi**, taking the name of Ganges only after the Alaknanda joins it, 133 m. from its source, near where it enters British India. It passes Cawnpore, and flows to Allahabad, where it receives the **Yamuna** and becomes a great river, having now traversed 670 m. It turns eastward and passes Benares, Patna and other towns, receiving the **Gumti**, **Gogra**, **Gandak** and other streams. Farther on the **Brahmaputra** joins it, and the vast delta begins. It enters the sea by several mouths, one being the **Hoogly** on which Calcutta stands.

The Ganges is 1557 m. long and drains an area of about 390,000 sq. m. It is navigable for about 700 m., and barges can reach Cawnpore. It is subject to floods which in the wet season cover an immense area. The Ganges' canal irrigate an enormous area between the main river and the **Yamuna**, and help to make the valley one of the most fertile in the world.

To the Hindus the Ganges is a sacred river, **Mother Ganga**, and at Benares and elsewhere they come in thousands to bathe in her waters. In 1931 its sources were explored by an expedition composed of British scientists.

Ganglion In anatomy, a swelling upon the course of a nerve, composed of nerve cells. The sympathetic system of man and other vertebrates comprises essentially chains of ganglia. Others occur on the posterior roots of the spinal nerves, and one, called **Gasserian**, on the fifth cranial nerve's sensory root. In pathology, a ganglion is an encysted tumour, containing fluid, on a tendon sheath, particularly in the sinews before and behind the wrists. It arises from disorder of the synovial membrane.

Gangrene Mortification or death of part of the body large enough to be seen—thus distinct from ulceration, which is slow successive death of microscopic parts, and from necrosis, death of internal parts, particularly bones. **Dry gangrene**, a process of mummification, may attack the aged. **Moist gangrene** is accompanied by putrefaction, the part becoming swollen with fluid, and when dead forming a slough. **Gangrene** may arise from burning, crushing, frost-bite, ergot-poisoning, or bacterial infection. **Hospital gangrene** succumbed to Lister's antiseptic treatment.

Gannet Widespread genus of web-footed sea-fowl (*Sula*). The northern **solan goose**, *S. bassana*, which is 34 in. long, with a 6 ft. wing-spread, haunts the Atlantic coasts of Europe and N. Africa and feeds on fish. It is white-plumaged, with a yellow-tipped neck, and black wing feathers. Its breeding grounds include the Hebrides, **Alisa Craig**, **Lundy Island**, and **Bass Rock**. One egg only is laid. Smaller species inhabit the Cape of Good Hope and Australia. See **Booby**.

Ganymede Character in Greek legend. A beautiful youth, he attracted the notice of Zeus, who sent an eagle to carry him to Olympus, where he became his cup-bearer. He was supposed to be a son of **Troos**, King of Troy.

Gapes Disease of poultry. It is caused by the presence in the windpipe of a parasitic threadworm, *Syngamus trachealis*. The eggs, picked up from infected ground, develop into mature worms, which cling to the mucous membrane of the windpipe, causing

great irritation and weakness. The annual mortality from suffocation is large.

Garbo *Greta*. Swedish film actress. *Greta Gustafsson* was born Sept. 18, 1905, in Stockholm, and at the age of fourteen began work in a department store. In 1922 she began to work in films, and later joined a Dramatic School. She played in *Gosta Berling's Saga* under the direction of Mauritz Stiller, and changed her name to Garbo. After a picture in Germany she went to Hollywood, with Stiller, and made her first picture, *The Talker*. There followed *The Temptress*, *The Flesh and the Devil*, *Love*, *The Divine Woman*, *Anna Christie*, *Romance*, *Inspiration*, *Mati Huri* and *Grand Hotel*.

Garda Lake of Italy. In the north of the country, it is one of the "Italian Lakes," famous for their beauty. It is about 35 m. long and covers 180 sq. m., being the largest lake in Italy. Gardone Riviera is one of the resorts on the lake which has been immortalised in the poetry of Virgil and Dante.

Gardelegen Town of Germany. It stands on the Mulde, and on the railway line from Hanover to Berlin. Here, during the Great War, the Germans set up a camp for prisoners of war. In 1915 about 11,000 men were interned, and great distress was caused by epidemics of typhus and other diseases. The German treatment of the prisoners in this camp was the subject of a special report drawn up by the British Government in 1916.

Gardening (AS A CAREER). The possibilities of employment after a horticultural training include nursery gardening, landscape gardening, positions with fruit, flower and vegetable growers, occasional openings in connection with public parks and botanical gardens, and sub-inspectorships under the Ministry of Agriculture. To begin market gardening in a small way, capital amounting to about £1000 to £1500 is required.

The highest qualifications to be obtained are the London B.Sc. in Horticulture, and the National Diploma in Horticulture held by the Royal Horticultural Society with the approval of the Board of Agriculture. Other examinations held by the Royal Horticultural Society are:

The General Examination (Juniors and Seniors).

The Teachers' Examination in School and Cottage Gardening (Preliminary and Advanced).

Training for the horticultural examinations is best taken at a college, such as the Royal Horticultural Society's School at Wisley, Surrey, for men (two years' course). Practical experience with a horticulturist is extremely helpful, a premium usually being required. Both sexes are admitted to University College, Reading, and the Royal Botanic Society's School of Gardening in London.

A list of Horticultural Colleges for both men and women, and a syllabus of examinations, may be obtained from The Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W. 1.

Garden City Residential district in which the houses are built with plenty of space for gardens and open spaces. The first garden city in England was planned at Letchworth in 1904. On 6 sq. m. of land a town to house 35,000 people was planned. Other garden cities followed, one being at Welwyn and another the Hampstead

Garden Suburb. Bournville and Earlswood, built for industrial workers, are also garden suburbs. The movement has spread to the British Dominions, and there are also garden cities in France, Germany, the United States, and other countries. To promote the movement, the Garden City and Town Planning Association was founded in 1899, with offices at 3 Gray's Inn Place, London, W.C. 1.

Garden City, on Long Island (U.S.A.), is 20 m. from New York.

Gardenia Genus of evergreen trees and shrubs, named by Linnaeus after the botanist Alexander Garden, F.R.S. Native to S. Africa and tropical Asia, several species are cultivated, especially the Chinese, *G. florita*, popularly called Cape jasmine, and the Japanese, *G. radicans*. The handsome white or yellowish flowers are often delicately perfumed.

Gardiner *Samuel Rawson*. English historian. Born at Ropley, Hampshire, Mar. 4, 1829, his most important work is the *History of England from the Accession of James I. to the Outbreak of the Great Civil War*, 1863-82, and he also wrote *The Great Civil War, 1864-91*, *The Commonwealth and Protectorate, 1894-1903*, and many other historical works all marked by painstaking accuracy, including *A Student's History of England*. He died Feb. 14, 1902.

Gardiner *Stephen*. English prolate and statesman. Born at Bury St. Edmunds, about 1493, he was elected Master of Trinity Hall, Cambridge, in 1525. In 1528 he was sent by Henry VIII. to Italy to secure the consent of the Pope to the divorce of Catherine of Aragon, and, though he failed in his mission, he was made Secretary of State the next year, and in 1531 Bishop of Winchester. When Edward VI. ascended the throne he was deprived of his see and imprisoned, but, on the accession of Mary in 1553, was released, reinstated to his bishopric and made Lord Chancellor. He died Nov. 12, 1555.

Gareloch Opening of the Firth of Clyde. It penetrates the land for about 7 m. from Helensburgh to Garelochhead, a pleasure resort. Another watering place on its banks is Roseneath.

Garfield *James Abram*. American statesman. Born at Orange, Ohio, Nov. 19, 1831, he distinguished himself as a soldier during the Civil War, and in 1863 was elected as a republican to the House of Representatives at Washington, being for the next 18 years a leader of his party. In 1880 he was chosen President, but in July, 1881, he was shot at Washington. He lived until Sept. 19, 1881.

Garforth Urban district of Yorkshire (W.R.). It is 7 m. from Leeds, on the L.N.E. Ry. The principal industry is coal mining. Pop. (1931) 3774.

Garibaldi *Giuseppe*. Italian patriot. Born at Nice, July 4, 1807, the son of a fisherman, he early came under the influence of Mazzini, then organising the Young Italy movement, and joined the insurrection of 1834. Forced to flee the country, he was from 1836-48 in S. America, fighting for the Montevideans against Rosas. On his return to Europe in 1848 he fought for the King of Sardinia, and, a member of the revolutionary government, defended Rome against the French. In 1859 he again fought for Sardinia against the Austrians.

After the peace of Villafranca, making a united Italy his aim, he led a small army of volunteers, his "red shirts," into Sicily, which he captured from the Bourbon King of Naples. He then captured the Neapolitan territory on the mainland and handed both to Victor Emmanuel, thus helping him to become the first King of united Italy. In 1862, and again in 1867, Garibaldi made unsuccessful attempts to take Rome, being forced after each to go into retirement at Caprera. In 1870 he gave his services to France against Germany. He died, June 2, 1882.

Garlic Pungent perennial bulbous herb (*Allium sativum*) of the lily order. A native of Asia, and widespread anciently in the Mediterranean region. It has long been a favourite condiment in S. Europe and most Oriental countries, and was introduced into England in Tudor times. The bulb has membranous scales whose axils bear 10 or 12 smaller bulbs called cloves of garlic. Medicinally, it is a stimulant and stomachic. *A. ursinum* is bear's garlic or ramsons; other British species are crow, wild, and field garlic.

Garnet Group of gemstones of varying composition and colour, but possessing certain characteristics in common. The garnets crystallise in 12 or 24 sided forms, have a greasy lustre and imperfect cleavage. They are complex silicates of various oxides. Lime-alumina garnets are red, yellow, or green, a gemstone of this class being the cinnamon stone of Ceylon. Iron-alumina garnet, or almandine, is purplish red; the common red garnet is a magnesia-alumina variety.

Garonne River of France. It rises in Spain in the Pyrenees, but soon enters France. It passes Toulouse and Agen, and reaches Bordeaux, near which city it unites with the Dordogne to make the estuary called the Gironde. The tributaries include the Lot, Tarn, Save, Gers, Ariège, and Salat, and its length is about 350 m. The Canal du Midi links it with the Mediterranean.

Garriek David. English actor. The son of an officer, he was born in Hereford, Feb. 19, 1717, and educated at Lichfield. He there met Johnson, who took him as a pupil, and in 1737 the pair set out together for London. Engaged for a time, unsuccessfully, in the wine trade, Garriek first appeared on the stage in London in 1741, and won an instant success. He played at Drury Lane, in Dublin, and at Covent Garden, and in 1747 became joint manager of Drury Lane, where he remained until 1776. He died, Jan. 20, 1779.

Garriek ranks as one of the greatest, if not the greatest, of English actors. His name is perpetuated by the Garriek Club, founded in 1831. The house is at 15 Garriek Street, London, W.C.

Garrison Armed force stationed in a fort, castle, or fortified town to defend or guard it, or to control the inhabitants. Towns in which garrisons, for convenience or precaution, are habitually stationed, are called **garrison towns**. These usually include companies of the Royal Artillery.

Garrison William Lloyd. American abolitionist. Born at Newburyport, Mass., Dec. 10, 1805, in 1826 he became editor of a newspaper in his native town, and came out as an advocate of the abolition of slavery. In 1831 he started *The Liberator* at Boston, which he continued to

edit in spite of grave danger and difficulties. As the foremost opponent of slavery, Garrison lectured in England, and was President of the Anti-Slavery Society. In 1865, on the abolition of slavery, he was presented with 30,000 dollars. He died in New York, May 21, 1879.

Garrotte Appliance used in Spain and Portugal for executing sentences of death. The seated criminal is secured to an upright post by a ligged metal collar, a screw or lever dislocating the spinal column. Originally the collar was a cord, strangulation being effected by twisting the cord with a cudgel.

Garry Lake of Canada. In the North-West Territories, it is only just outside the Arctic regions, and covers nearly 1000 sq. m. The Great Fish River flows through it to take its waters to the Arctic Ocean. **Garry Island** is an island at the mouth of the Mackenzie River in the Arctic Ocean. **Fort Garry** is the old name of Winnipeg.

Garter Order of the. Senior English order of knighthood. It dates from 1348, when it was founded by King Edward III. Its motto, *honi soit qui mal y pense*, is inscribed on the garter of dark blue velvet which knights wear just below the left knee. They also wear a mantle, surcoat, and hood, with a collar of Tudor roses, from which the George, a figure of S. George, and a star, are suspended.

The head of the order is the Sovereign, and there are 26 knights in addition to members of the royal family and foreign rulers and princes. Each knight has a stall in S. George's Chapel, Windsor. The **garter king of arms** is the herald of the order. For years membership was confined to peers, but in the 20th century the garter was given to Sir Edward Grey, later Viscount Grey, and Sir Austen Chamberlain. Knights are distinguished by the letters K.G., and rank above all other knights.

Gas State of matter in which the cohesion between the material particles is at its minimum, producing a condition of perfect fluidity. Consequently a gas has no definite size or shape except that given by a containing vessel. By the application of cold, gases pass into the liquid or solid state, and similarly heat will change a solid or liquid into a gas.

Gases readily diffuse into one another, are soluble in many liquids, and their properties of viscosity in flow and compressibility are well marked characters. They show characteristic absorption bands in the spectrum.

The commonest gases are the constituents of air and water, viz., oxygen, nitrogen, and hydrogen; coal gas, from the distillation of coal, is used as an illuminant and source of heat. Water gas, produced by passing steam through a mass of incandescent coke, is also employed as an illuminant.

Gas for lighting and heating houses, shops, factories and the like, is supplied by companies which obtain their powers from Acts of Parliament and are supervised by the Board of Trade.

POISON GAS. In modern warfare toxic and irritant gases are discharged against hostile troops by means of cylinders or special shells. They were first introduced during the Great War. The employment of shells containing an irritant gas (dianisidine chlorosulphonate) at Neuve Chapelle was followed by the use of a tear gas (xylil bromide), and later by cylinders of chlorine and a mixture of chlorine and phosgene. In 1917 other toxic and irritant

gases were introduced, such as mustard gas (dichlorethylsulphide). The use of gas in warfare necessitated the employment of various types of anti-gas respirators.

Gascoigne Sir William. English judge. Born about 1350, he was made Chief Justice of the King's Bench in 1400. In 1403 he was commissioned to levy forces against the rebellious Earl of Northumberland. He seems to have resigned his office soon after the accession of Henry V., and he died in 1419. Two instances, both probably untrue, are cited to illustrate his impartiality and fearlessness, i.e., he refused to try Archbishop Scrope, since he had no jurisdiction over ecclesiastics, and he commuted Prince Henry (later Henry V.) for contempt of court.

Gascony District of France. In the south-west of the country, in the angle formed by the Pyrenees and the Atlantic Ocean. It takes its name from a tribe called the Vascones. In the Middle Ages it became a dukedom; but about 1100, or earlier, it became part of Aquitaine, and as such was included in the dowry of Eleanor, wife of Henry II. of England; it remained an English possession until 1453. The men of Gascony—Gascons, as they were called—were proverbially braggarts and swaggers, albeit not without courage. Their speech, a French dialect, is still heard in the district.

Gas Engine Type of internal combustion engine. The power is obtained from the combustion of an explosive mixture of gas and air in a cylinder. The first engine of this type was invented in 1860 by Lenoir, who used coal gas as fuel. It was improved upon by Otto introducing the four-stroke cycle, in which there is one explosion for every four strokes of the piston, the cycle of operations being completed in two revolutions of the crank. Most gas engines are of this type and single acting, but a two-stroke cycle is used for many large engines since it gives a greater output of power.

Gaskell Elizabeth Cleghorn. English novelist. Born in London, Sept. 29, 1810, she was brought up at Knutsford and Stratford-on-Avon. She married, in 1832, William Gaskell, a Unitarian minister in Manchester. Her first novel, *Mary Barton*, appeared in 1848; then came *Ruth*, and *Cranford*, her best known work, in 1853. She also wrote *North and South*, *Sylvia's Lovers*, *Wives and Daughters*, and a life of *Charlotte Brontë*. She died Nov. 12, 1865.

Gas Mantle Device to give increased illumination. It was invented by Welsbach in 1885 for attachment to a burner of the Bunsen type. It consists of a tube of loosely woven fabric of ramie fibre, rayon, or cotton, impregnated with a solution of thorium and cerium nitrates obtained from the mineral monazite. The mantle when burned leaves an incandescent skeleton of the earthy oxides giving a brilliant light. The finished mantle is stiffened with collodion which is burned off on first lighting.

Gasometer Large gas holder used in the storage of coal gas. It consists of a cylinder, usually of telescopic construction, contained within a water tank, in which the holder rises and falls but is held in position by roller guides on the top and bottom edges. The outlet is regulated by a governor controlling the pressure of gas.

Gasometry Method of measuring the volume of gases and gas-

eous mixtures. This is done by means of the pycnometer (*q.v.*) and other apparatus. Hempel's apparatus, which is frequently used in industrial analysis, consists of a gas burette for measuring and an absorption apparatus of two or more bulbs in which the gas is brought into contact with reagents. The burette consists of two vertical glass tubes joined by flexible tubing, one tube being graduated in centimetres, the other open and not graduated.

Gaspé Peninsula of Canada. It lies to the south of the St. Lawrence in the extreme east of the Province of Quebec. Mainly a forest area, it has a cold climate and is thinly peopled. At its eastern end and in the Gulf of St. Lawrence are Gaspé Bay and Cape Gaspé.

Gastein Name of several villages of Austria. They stand in a beautiful valley near Salzburg and are visited by health and pleasure seekers. The River Asche flows through the valley. The most popular village for visitors is Wildbad-Gastein, where there are some mineral springs.

The Convention of Gastein was an agreement signed between Austria and Prussia on Aug. 14, 1865. The two countries had just taken Schleswig and Holstein from Denmark and by this Convention they agreed that Prussia should possess Schleswig, and Austria, Holstein. The arrangement fell through very soon, as war broke out between them in 1866.

Gastritis Inflammation of the stomach. It is usually due to the irritation of its lining of mucous membrane, and may be either acute or chronic in character. The former may arise from errors of diet or from an irritant poison, the symptoms being like those of bilious attacks. The chronic type especially attends persons addicted to alcoholic excess or to bolting food, and is often associated with heart disease or disordered liver. Pain, the sensation of fullness, flatulence, nausea and lassitude are experienced. See DYSPEPSIA.

Gastropoda Class of belly-footed molluscs. They crawl on a broad, muscular, disc-like foot beneath the body. A univalve shell, never a bivalve, is generally developed in the larval form, it is sometimes obsolete or absent in the adult. All gastropods possess rasping tongues, the mouth being situated in the foot. Over 16,000 species are known, and they are found on land, or in fresh or salt water. Many are gill-breathing *c.g.*, whelks, periwinkles, limpets and cowries. Others are air-breathing, such as slugs and snails or land shells.

Gastrostomy Operation of forming a permanent artificial opening into the stomach for introducing food. It becomes essential when food cannot traverse the gullet because of obstruction or stricture. Gastrostomy is the making of incisions through the abdominal walls. Gastroctomy is the operation for removing the stomach, in whole or part.

Gateshead Borough and seaport of Durham. It stands on the Tyne, just opposite Newcastle, on the L.N.E. Ry., 267 m. from London. The industries include engineering works, railway shops and the manufacture of chemicals. Shipping and shipbuilding also give employment. Pop. (1931) 122,379.

Gath One of five confederated Philistine cities. It was captured by Sargon of Assyria in 711 B.C. The birthplace of Goliath,

David conquered it; it was fortified by Rehoboam, annexed by Hazael of Damascus and destroyed by Uzziah.

Gatling **Richard Jordan**. American inventor. Born in North Carolina, Sept. 12, 1818, he was educated at Ohio Medical College. In 1862 he invented the Gatling machine gun, and among his other inventions were a steam plough, a new gun metal and a hemp-breaking machine. The **Gatling gun** was of the revolving type with six barrels, a crank, worked by hand, feeding, firing and ejecting the cartridges. He died Feb. 26, 1903.

Gatton Village of Surrey, once a borough. It is 2 m. from Reigate. Pop. 236. **Gatton House**, now the residence of Sir Jeremiah Colman, was built in the 18th century.

Gatun Town, lake and river of Central America. The town is in the Panama Canal Zone and belongs to the U.S.A. It is on the canal, where the rivers Gatun and Chagres meet, 7 m. by railway from Colon. Here are huge locks and a dam.

Gatwick English racecourse. It is near Horley, Surrey, about 26 m. from London, on the S. Ry. Several meetings are held here during the racing season.

Gauchos Mounted herdsmen of the Uruguay and Argentine pampas. Although some are aboriginal Indians, those properly called Gauchos claim Spanish paternity. Their skillful horsemanship, innate courtesy and love of finery endow them with a notoriety not always untainted by brigandage.

Gaudeamus College students' merry-making, especially in Scotland. The word is derived from a German students' song in dog Latin, beginning *Gaudeamus igitur juvenes dum sumus*, *Then let us be merry while we are young*. A modified version of an adaptation dating from 1776 appears in *The Scottish Students' Song-book*.

Gauguin **Paul**. French painter. Born in Paris, June 7, 1848, he spent his childhood in Peru and Orléans, and entered a banking firm in 1871. Soon after, encouraged by Pissarro, he began painting, joining the Post-Impressionist group, and later started the Synthetist movement, which treated colour in a new way. After painting in Brittany and Southern France, he worked in Tahiti from 1891-93, painting the natives, as in "Devant la Case," "Jours Délicieux." After visiting Paris, he returned to Tahiti in 1895, and removed to Dominika in 1901, where he died, May 9, 1903.

Gauge Term originally given to a measuring rod used in gauging the contents of casks; now used for many forms of measuring apparatus. In the measurement of wire and sheet metal, definite gauges of the diameter or thickness are adopted for purposes of standardisation, as in the **Birmingham Wire Gauge** (B.W.G.) for electrical wires, etc., or the **Standard Wire Gauge** (S.W.G.) for general purposes. Rain gauges, water and steam gauges are other forms of measuring instruments. A **railway gauge** is the width between the lines of the railroad. The standard gauge, which has been adopted over a great part of the civilised world, is 4 ft. 8½ in.

Gaul Old name for France. It is the modern form of the Roman name *Gallia*, which was given to the European region inhabited by Celtic-speaking peoples. This was at first divided into Cisalpine, South

of the Alps, and Transalpine, beyond the Alps, and besides France embraced various adjacent regions.

Gault Name given to a soft bluish clay. It is found between the Greensands, upper and lower, in the south of England, and is used for making bricks and tiles.

Gauntlet In medieval armor, a protective glove, sometimes bearing metal knobs and spikes. It was introduced in the 13th century; later types were made of hammered steel, completely fingered and jointed. Nowadays the term denotes a long, stout glove, used mainly for riding or driving.

In **running the gauntlet** it is confused with an entirely distinct Swedish word, *gallopp*, lane run.

Gautier **Théophile**. French author. Born at Tarbes, Aug. 31, 1811, he was educated in Paris, where he studied art and literature. An ardent, and in his youth, an extravagant Romantic, he early became a disciple of Victor Hugo. In 1830 he published *Albertus*, a metrical romance, and in 1835, *Mlle. de Maupin*, a brilliant but immoral novel. A journalist and critic, he was also the author of a great number of novels and poems of great merit and real beauty. They include, *Les Jeunes-France*, *Le Capitaine Fracasse*, and *Managerie Intime*, and in verse, *Émaux et Cambrés* and *La Comédie de la Mort*. Gautier died in Paris, Oct. 23, 1872.

Gavelkind Form of land tenure. By it land descended to all the sons equally if the father died intestate. It was thus the opposite of primogeniture. Gavelkind was long the custom in Kent, but in 1925 all these relics of ancient land customs in England were abolished.

Gavotte Lovely and graceful dance. Of French peasant origin, it is derived from the Gavots, or people of the Pays du Gap, Hautes Alpes. A French court dance in the 16th century, late in the 18th century it passed to the stage.

Gay John. English poet and dramatist. Born in Devonshire in 1685, he was educated at Barnstaple and for a time was apprenticed to a silk mercer in London. Soon turning to literature he wrote poems, pamphlets and plays, scoring his first success in 1714 with a pastoral, *The Shepherd's Week*, suggested to him by Pope. This was followed by *Tricia*, a poem describing the London streets. In 1727 his *Fables* were published. His best work was *The Beggar's Opera*, produced the next year, the success of which was unprecedented. The production of a sequel, *Polly*, was prohibited, but in book form it was very successful. Gay died Dec. 4, 1732, and was buried in Westminster Abbey.

Gaza Town of Palestine, also called *Guzzeh*. It stands near the Mediterranean Sea. It was a Philistine city and owing to its position has always been a place of military importance. Pop. 17,500.

There was a good deal of fighting around Gaza during the World War. In 1917 the British forces invading Palestine twice attacked and failed to take Gaza, but succeeded on the third attack, under Allenby, in Nov. 1917.

In 1930 Sir Flinders Petrie unearthed the remains of an early and great city here. Many remarkable finds were reported.

Gazelle Genus of small antelopes. Native to N. Africa and Asia, they form large herds on the desert borders. They are

graceful, swift and slender-limbed, and are mostly under 30 ins. high at the shoulder. The male of the Dorcas gazelle, often tamed in Arabia and Persia, has lyre-shaped, ringed horns about 13 ins. long.

Gdynia Seaport of Poland. It stands on the Gulf of Danzig, 12 m. from the free city of that name. Much of the trade of Poland now passes through it. Pop. 2500.

Gear Toothed wheels used in transmitting motion in machinery. There are many forms of gears, differing in the size of the wheels and the form of the teeth according to the speed and direction of the motion transmitted. In spur gearing the teeth are cycloidal or involute; bevel gearing is used where two shafts are set at an angle to one another and the rolling surfaces are portions of cones, while in worm gearing the wheel works upon a screw-like worm.

Geddes Sir Auckland Campbell. British politician. Born, June 21, 1879, he was educated at Edinburgh University. He became assistant professor of anatomy at Edinburgh and then professor of anatomy at McGill University, Montreal. He joined the army during the South African War, and again during the World War, being recalled from the front in 1916 to take up the post of director of recruiting. In 1917 he was knighted and successfully became minister for national service; president of the local government board (1918); minister of reconstruction (1919); and president of the board of trade (1919-20). He was for a short time head of McGill University, Montreal, a post he soon left to become ambassador at Washington (1920-24).

Geddes Sir Eric Campbell. Born in India, Sept. 26, 1875, he entered the railway service and gained experience in the United States and India. When the Great War began he held a high position in the North-Eastern Railway, which he left in 1915 to enter the ministry of munitions. He was next made director-general of military railways, where he made his mark, and passed on to become controller of the navy and then first lord of the admiralty. He was then chosen M.P. for Cambridge. In 1919, Geddes, who had been knighted in 1916 left the admiralty and was soon made minister of transport, in which capacity he carried out the regrouping of the railways. He left political life in 1921, and in 1922 was chairman of the committee that suggested reductions in national expenditure. In 1922 he was appointed chairman of the Dunlop Rubber Co. and of Imperial Airways.

Geddes Jenny. Scottish kail wife. She is known to fame as the woman who started a riot in S. Giles's, Edinburgh, July 23, 1637, by hurling her stool at the head of the dean who was reading Laud's liturgy for the first time. Bishop and dean were forced to flee and the liturgy was not read again. In the Antiquarian Museum, Edinburgh, the stool is to be seen.

Geelong City of Victoria, Australia. It is 45 m. from Melbourne and stands on Corio Bay, near the River Barwon. The industries include woollen mills, cement works and other manufactures. Shipping is an important industry. Greater Geelong covers 25 sq. m., and includes Newtown, Chilwell and Geelong West. Pop. (1930) 43,400.

Gehenna Greek form of the Hebrew name of the valley of Hinnom.

It is situated S.W. of Jerusalem. Solomon built there an altar to Moloch, and when Josiah dismantled it, the valley became the city's ash-heap, with its insect life and perpetual fires. Becoming the symbol for hell, it was so employed by Christ (Mark ix.4).

Geikie Sir Archibald. Scottish geologist. Born in Edinburgh, Dec. 28, 1835, and there educated, in 1855 he entered the geological survey. From 1867-81 he was director of the survey in Scotland. In 1871 he was appointed to the Murchison professorship of geology and mineralogy at Edinburgh University, and from 1881-1901 was director-general of the geological survey of the United Kingdom, and director of the Museum of Practical Geology, London. He was president of the Geological Society in 1909. An F.R.S. in 1865, he was knighted in 1891, and given the Order of Merit in 1914. He died Nov. 10, 1924. His many works include *Scenery of Scotland*, 1865; *Outlines of Field Geology*, 1882; *Ancient Volcanoes of Great Britain*, 1897; and *Text Book of Geology*. He also wrote *Scottish Reminiscences*.

Geisha Japanese girl educated from childhood to be a professional entertainer.

Gelatin Purified form of glue. It is prepared from the parings of hides and skins, bones and other animal products. The purest form, isinglass, is a fish glue. It is used for culinary purposes; in the preparation of photographic plates and films; also in bacteriology, dyeing, making a size for paper, and for various other purposes.

Gelderland Province of the Netherlands. It lies between the Zuyder Zee and Prussia and covers 1940 sq. m. Arnhem is the capital; other towns are Zutphen and Apeldoorn. For long Gelderland, or Guelders, had its own rulers, who were first counts and then, from 1339, dukes. In 1553 it passed to the Emperor Charles V., and in 1678 became one of the United Provinces. It was added to Prussia in 1713, but in 1814 was included in the kingdom of the Netherlands. Pop. 805,000.

Gelignite High explosive. A modification of gelatin dynamite, it consists of a thin jelly containing about 65 per cent of nitro-glycerine, with varying proportions of colloid cotton, nitrate of potash and wood meal. It is regarded as the standard explosive for blasting rocks and other industrial purposes.

Gelligaer Urban district and colliery centre of Glamorganshire, 14 m. from Cardiff, with stations at Burgoed, Hengoed and Pengam on the G.W. Rly. There are some interesting remains of a Roman camp. Pop. (1931) 41,042.

Gelo Tyrant of Syracuse. In 491 B.C. he was ruler of Gela in Sicily. In 485 he became tyrant of Syracuse and the city increased in size and importance. He won great fame by defeating a large army of Carthaginians in 480 B.C. He died in 478.

Gem Term applied to precious stones after cutting and polishing. A number of semi-precious stones, such as the agate, onyx and garnet, as well as cameos are included. In gem cutting there are many styles; the brilliant, rose and table-cut being examples of plane surfaces, while opals and certain other gems are cut with curved faces, "en cabochon."

Gemsbok Species of antelope (*Oryx gazella*). A native of S.W. Africa, it abounds in the Kalahari desert and Damaraland. It is a stout, heavy animal, about the size of a stag, with maned neck, tufted tail and coat of grey, black and white. Its nearly straight horns sometimes exceeding 3 ft. in length, enable it to beat off lions.

Gendarme French term denoting at first a man-at-arms mounted and armed at all points. Afterwards the word was used for a mounted soldier employed in maintaining the royal authority. This system, dissolved in 1788, was replaced in 1791 by military police, organised, uniformed and drilled like soldiers, who act under the civil authority. Similar forces exist in other European countries, being called in Spain the *guardia civil* and in Italy *carabinieri*.

Gender Distinction between nouns corresponding directly or metaphorically to the natural distinction of sex. Names denoting male sex are of masculine, those denoting female of feminine gender. Latin and other Indo-European languages recognised also names of neither or neuter gender, although mostly inanimate objects bore masculine or feminine names. French and other Romance languages have dropped the neuter gender. English has discarded grammatical gender entirely, natural gender being often indicated by variants, e.g., drake, duck.

Genealogy History of the descent of a person or family. It may form a pedigree or family tree. Genealogical records are investigated specially by the College of Arms in London. Lines of descent in the evolution of animals and plants constitute biological genealogies. There is a Society of Genealogists at 5 Bloomsbury Square, London, W.C.1.

General Name given to a military officer of high rank. It was first used in England for Cromwell, who was the lord general and who appointed major generals. In the British army the four kinds of general, all ranking between colonel and field-marshal, general, lieutenant-general, major-general and the temporary rank of brigadier-general.

In the Roman Catholic Church the Jesuits and some other orders call their head the general. He is elected by the provincials and lives in Rome, being subject only to the Pope.

General Assembly Name given to the governing body of the Church of Scotland and other Presbyterian churches in Ireland, Canada, Australia and elsewhere. The Scottish general assembly meets every year in Edinburgh in May, and consists of ministers and laymen sent as representatives by the presbyteries in the Church. The king is represented by a High Commissioner appointed each year. The assembly is presided over by a minister elected to the office, called the moderator. Until the union of the free churches with the established church, each had its own general assembly, which also met in Edinburgh in May.

General Strike. See STRIKE.

Generator In electricity a machine for the conversion of mechanical energy into electrical energy. This is done by the rotation of an armature, or other form of conductor, in a magnetic field. Generators are either of the direct current type, in which

the current flows in one direction, or of the alternating current type.

Genesis First book of the Old Testament. Its Greek name, meaning "origin," is that of the Septuagint version. After an account of the creation of the world it surveys the early history of mankind (i.-xi.), and in fuller detail that of the patriarchs Abraham, Isaac and Jacob (xii.-l.). Traditionally ascribed to Moses, and forming, with four succeeding books, the Pentateuch, it is now recognised as including contributions from four principal sources, having been finally revised after the Jews returned from exile in the 6th century.

Genetics Study of the problems of heredity and variation in types of organisms related by descent. The term is also used for the various problems of development of the individual, and of organic evolution. It covers such subjects as the nature and structure of the germ plasma, the relation of heredity to sex and the behaviour in inheritance of variations. Genetics has a practical application in the breeding of plants and animals and in eugenics.

Geneva Lake of France and Switzerland. It is 45 m. long and covers 225 sq. m., larger than any of the other Swiss Lakes. The southern shore is French territory. On its banks are Geneva, Lausanne, Montreux, Vevey and other pleasure resorts. The Rhône flows into the lake and emerges from its southern end. Steamers traverse the lake, which is called by the French Lac Léman.

Geneva City and river port of Switzerland, and the headquarters of the League of Nations. The capital of a Swiss canton of the same name, it stands at the S.W. end of Lake Geneva, where the Arve joins the Rhône, and is 388 m. by railway from Paris. On both banks of the Rhône, the older part lies on the left bank, and there are several bridges between the two. John Calvin's house still stands. An educational centre, Geneva has a university and several technical schools. The chapel of the Maccabees and the tower of the bishop's palace are interesting old buildings; the Palace of the Nations, the headquarters of the League of Nations, is modern. The International Labour Office possesses a fine edifice, and a building for the secretariat and library of the League of Nations has been planned in Ariana Park.

Geneva has a harbour in the river and quays for the shipping. Other industries include the manufacture of clocks, watches, jewellery, chocolate and motor cars. It has a broadcasting station (760 M., 1.5 kW.).

Geneva owes much of its importance to John Calvin, who settled here in 1536, and was for some years the city's autocrat. Previously it had been under its bishops, who were princes of the Empire; it then became a republic and remained so until the time of the French Revolution. In 1815 it became part of Switzerland. In the 19th century it was made the headquarters of the Red Cross Organisation, and in the 20th the seat of the League of Nations. Pop. 126,700.

The **Geneva Convention** is an agreement signed by the chief nations of the world in 1906. It provides for better treatment of the wounded in war than was previously the case, and forbids any misuse of the Red Cross flag.

Geneviève Patron saint of Paris. A shepherd's daughter, born about 423, she encouraged the citizens when

threatened by Attila and the Huns, and brought them aid when Childeric attacked the She founded the church of S. Denis, and was buried in the church of S. Etienne-du-Mont. Her festival day is Jan. 3.

Genie In Oriental mythology, a class of subservient spirits, lower than the angels. Made of fire and capable of appearing in human or animal guise, they sometimes exercise over mankind a supernatural influence for good or evil, thus bearing a casual and confusing likeness to the ancient Roman genii. The word is a corruption of the Arabic *jinn*, plural *jinnec*.

Genista See BROOM.

Genius God of Roman mythology. He was the god of productivity and especially of marriage. Each man or woman had his or her own genius, who acted as a protector throughout life, influencing the one protected towards good. Evil deeds were later said to be caused by the influence of an evil genius. Localities, cities, families, etc., also had their tutelary genius, the *genius loci* of the Romans.

From this it came to mean a person's inborn faculties. Still later, it was used for faculties or abilities of an exceptional kind, and so to-day a genius is a person endowed with unusual talent of a certain kind, e.g., a musical or literary genius.

Genoa City and seaport of Italy. The capital of a province of the same name, it stands on the Gulf of Genoa, an opening of the Ligurian Sea, 74 m. from Turin. It is well served by railways, and is the country's chief commercial seaport, and also a naval station. It consists of an old city, with narrow streets, and a modern part. Suburbs extend up the hills that overlook the sea. The little River Bisagno flows through the city.

BUILDINGS AND INSTITUTIONS.—The 10th century cathedral is small and has been much altered, but is full of interest. Among the churches mention may be made of S. Maria di Castello, S. Maria di Carignano, with its wonderful dome, S. Siro, originally a cathedral, S. Matteo, the church of the great Doria family, and S. Donato.

The palaces include the municipal palace, the palace of the doges, the Doria palace, the Palazzo Rosso and the Palazzo Bianco, the red and the white palaces. The Palazzo di S. Giorgio is used by the harbour authorities. The city is still surrounded by walls, these being 12 m. in circumference and having eight gates.

Genoa has a university founded in 1243, and many colleges and schools, technical and otherwise. The cemetery or Campo Santo is a feature of the city. The central square is the Piazza di Ferrari but there are many others, as well as parks and public gardens. The Cosso d' Italia, a promenade along the sea front, is of recent date. A war memorial in the form of an arch was unveiled in 1931. The theatre Carlo Felice is noteworthy, as is the Verdi institute of music. There is an excellent service of electric tramways, and circular railways go up the hills at the back of the city. There are many memorials of Columbus, Genoa's greatest son.

Shipping is Genoa's chief industry and for this there are large harbours and docks equipped on the most modern lines. A vast trade passes through the port, and to deal with it the harbour accommodation was extended

after the Great War. The manufactures include steel, motor cars and hats; the ship-building yards are important. There is a naval harbour, and Genoa is also an air port and a broadcasting station (312.8 M.; 10 kW.).

HISTORY.—About the year 1000 Genoa became a flourishing seaport and grew rapidly in wealth. It was practically a little republic, ruling over a considerable area around the city, but its chief fame arose from the fact that, with Venice, it almost monopolised the sea trade between Asia and Europe. In 1339 the first doge was elected. In 1380 the Venetians defeated the Genoese in a sea fight, and until 1528 the city was under French protection. It then became again independent and so remained until the French Revolution, when it was the capital of the short-lived Ligurian Republic. In 1815 it was given to Sardinia and thus became part of Italy. Pop. 621,600.

In 1922, a European conference was held here, at which for the first time Soviet Russia was represented.

Genesic King of the Vandals. Sometimes called Galseric, he became king in A.D. 428. He conquered parts of Africa where he set up a Vandal kingdom with Carthage as its capital. He then took Sicily, Sardinia and Corsica, and ravaged the coasts of the Mediterranean. In 455 he led his men to Rome, which he took and sacked. He died Jan. 25, 477. In religion Genesic was an Arian Christian.

Gentian Genus of annual or perennial herbs (*gentiana*). The funnel-shaped corolla, usually blue, are adapted for various kinds of insect visitors; the small ventral gentian for butterflies, the marsh gentian for humble-bees, etc. The yellow *G. lutea* contains a bitter principle, utilised medicinally for promoting digestion. Native of temperate and alpine regions, of the 300 species only five are British; several yield ornamental garden varieties, notably *G. asclepiadea*, the stemless gentianella and a white-throated form.

Gentiles In the English Bible term usually denoting persons not of Jewish race. In the Old Testament, gentile, the Hebrew word for nation, was sometimes used generally, but in other instances implied their inferiority as heathens. In the New Testament the word was used for Greeks and other non-Jewish nations. S. Paul was the apostle of the Gentiles (Ro. xi.).

Genus Grouping of a number of species of plants or animals having certain constant characters in common. Thus, among plants the raspberry and blackberry form distinct species, but yet having certain common characteristics, together form the genus *rubus*. In their nomenclature the generic name precedes the specific one, thus the blackberry is *rubus fruticosus*.

Geodesy Science dealing with the measurement of the earth's surface on a large scale. Surveying for this purpose consists of triangulation, in which an area is divided into a series of triangles whose sides and angles are measured. A suitable base line of known length is taken, and from it by angular measurement other distant points are measured. In geodetic surveying special types of theodolites, levels and other instruments are used.

Geography Science dealing with the surface configuration of

the earth in relation to man. Geography is indebted to other branches of knowledge for facts which explain or help to elucidate the problems of the physical conditions of a country and its inhabitants. For example, the study of existing land forms is aided by geological evidence of former land masses, and meteorology helps in studying the effects of climatic conditions on a country. **Commercial geography** deals with economic products of the earth, their discovery, production and effects upon mankind. **Oceanography**, the study of the sea, has advanced greatly during recent years and gives us knowledge of currents, etc., which have their effect upon transport and commerce. **Historical geography** is concerned with the changes in the delimitation of countries at different times in history.

The **Royal Geographical Society** is devoted to the study of the science and, in addition to a valuable library and map room, issues a monthly *Journal*. It has fine premises at Lowther Lodge, Kensington Gore, London, S.W. There is a Royal Scottish Geographical Society in Edinburgh, which also publishes a *Journal*, and the United States has influential and rich societies of the same kind. The *National Geographic Magazine* is one of the most valuable of American publications.

Geology Science dealing with the constitution and history of the earth's crust. Having so wide a range of investigation, geology has many subdivisions, and of necessity is linked to the other natural sciences. Mineralogy, the study of the mineral constituents, and petrology, the study of rock structure, form important sections of the science. The study of the relations of rock masses and strata constitutes tectonic or structural geology, while dynamic or physical geology is concerned with the effects of volcanic action and the forces of denudation. Stratigraphical geology deals with the historical sequence of the rocks and strata, and palaeogeology with the fossil contents of the beds. In the study of the nature of minerals and rocks, geology is linked on to chemistry and physics, while in palaeontology a knowledge of both zoology and botany is necessary. The microscope has become an important aid in interpreting the minute structure of rocks and minerals. The foundation of modern geology dates from the publication of James Hutton's *Theory of the Earth* in 1788, supplemented by the work in Britain in later years of William Smith, Sedgwick, Murchison, Geikie, Lyell and others.

Geology has its economic aspect in relation to various engineering operations, the study of building stones and the search for ores. To foster the interests of this science there is the **Geological Society** at Burlington House, London. There is also a **Geological Survey**, a public department, which exists to map out the strata in Great Britain. Connected with it is the **Museum of Practical Geology** in Jernyn Street, London, W. For India there is a Geological Survey with similar duties.

Geometry Science dealing with measurement and the properties of space. Plane or two-dimensional geometry is concerned with the properties of plane figures, while solid geometry deals with solid figures of three dimensions. Some knowledge of the science was known in ancient times, but it was on Greek soil and especially at Alexandria that geometry flourished.

Thales, "the father of geometry," was followed by Pythagoras, Hippocrates, and later Euclid as early exponents of the science.

George Name of three lakes. One in Uganda, is connected by a narrow channel with Lake Edward and has an area of about 150 sq. m. It was formerly called Albert Edward Nyanza. Another Lake George is a salt lake in New South Wales. This is 25 m. long and is often dry.

A third lake of this name is in New York State, in the Adirondack Mts., and is 33 m. long. In it are many islands, and on its shores are several pleasure resorts. It is connected with Lake Champlain, and is sometimes called Horicon.

George Patron saint of England and Portugal. Little is known of him. He was probably a soldier in Cappadocia, who, as a Christian, was put to death at Nicomedia on April 23, 303, which is kept as his day. The popular legend about him is that he killed a dragon and then became a preacher of Christianity. In the Middle Ages he became associated with England and since the 13th century, or earlier, his festival has been kept. In 1319, he was recognised as the country's patron saint and the badge of the order of the garter, as it bore his figure, is called the George. Later his feat of killing the dragon was pictured on coins and medals. He is commemorated by S. George's chapel at Windsor and the order of S. Michael and S. George.

George Town of the Cape Province, S. Africa. It is 32 m. from Mossel Bay, the seat of an Anglican bishop and an important educational centre. Pop. 4800.

George I. King of Great Britain and Ireland. Born in Hanover, March 28, 1660, he succeeded his father, Ernest Augustus, as elector of Hanover, 1698. His mother, Sophia, daughter of the elector palatine and granddaughter of James I., was made heir to the throne of Great Britain in 1701. She died, however, before Queen Anne, so when, in 1714, that sovereign's life ended, George became king. He took little part in the affairs of Britain, and in this way contributed much to the development of the modern idea of government by ministers with the king as figure head. He died at Osnabrück, June 11, 1727. George married a cousin, Sophia Dorothea, but in 1694 he divorced her and kept her in prison.

George II. King of Great Britain and Ireland. Born in Hanover, Nov. 10, 1683, and only son of the electoral Prince of Hanover who in 1714 became George I. of Great Britain; he spent most of his early life in Hanover. In 1706 he was made Earl of Cambridge, and in 1714 he settled in England, being created Prince of Wales. He was on bad terms with his father, who refused to have him at court, so he set up a court of his own, and those who disliked George I. and his ministers, gathered round the prince and his wife, Caroline, a princess of Brunswick, whom he had married in 1705.

In June, 1727, George became king, and he ruled for nearly 33 years. He did not interfere much with politics, especially when he had Sir Robert Walpole as prime minister, although he was by no means a cipher and from time to time exerted himself effectually. In 1743 he led an army in the field against the French at Dettingen. His reign was notable for the Jacobite rising in 1745 and for war with

France, and it ended in a blaze of glory, with victories (1759) in three continents. George died, Oct. 25, 1760. His family consisted of two sons, Frederick, Prince of Wales, and the Duke of Gloucester, and five daughters. Frederick died before his father, who was therefore succeeded by his grandson, George III.

George III. King of Great Britain and Ireland. Born June 4, 1738, he was the son of Frederick, Prince of Wales, and his wife, Augusta, a Princess of Saxe-Coburg. His father died in 1751, and he was educated under the care of his mother and the Earl of Bute, who imbued his mind with the idea that a king should be a kindly autocrat.

In Oct. 1760, George succeeded his grandfather, George II. In 1762 he made Bute prime minister, but in 1763 the earl resigned an office which he had made thoroughly unpopular. After this failure George found it difficult to secure a prime minister who was sufficiently docile, but he persevered, and in 1770, having formed in Parliament a party known as the king's friends, he was able to put Lord North at the head of affairs. For twelve years George and North were responsible for the government, a period marked by the loss of the American colonies. His influence became less after North's resignation in 1782; he was able, however, to prevent Pitt from granting relief to Roman Catholics. In 1788, the king's mind gave way, and his son George was appointed regent. He soon recovered, but after several further attacks, he became permanently insane in 1811, and for the rest of the reign his place was taken by his son as regent. He died Jan. 29, 1820.

George married, in 1761, Charlotte, princess of Mecklenburg-Strelitz and had 15 children. Seven of the nine sons grew up to manhood. They were George IV., William IV., and the Dukes of York, Kent, Cumberland, Sussex and Cambridge.

George IV. King of Great Britain and Ireland. Born in London, Aug. 12, 1762, he was the eldest son of George III., his full name being George Augustus Frederick. He was made Prince of Wales in the same year. In 1795 he married Caroline of Brunswick and they had one child, Charlotte, who died in 1817. The prince soon quarrelled with his wife and for some years the relations between them were the subject of general discussion, whilst there was fresh trouble when George became king.

As Prince of Wales, George was notorious for his extravagance and his love of questionable pleasures generally. He was not on good terms with his father and became the central figure of the Whig opposition to the government, Fox and Sheridan being among his friends. He acted as regent during his father's insanity in 1788. In 1811 he was again regent, and this time he retained the office until he became king in Jan. 1820. He reigned for ten years, but exercised no great influence on public affairs. He died at Windsor, June 26, 1830. George created the popularity of Brighton, where he built the royal pavilion as a residence. Mrs. Fitzherbert was his morganatic wife from 1785 until her death in 1813.

George V. King of Great Britain, Dominions beyond the Seas, and Emperor of India. Born in London, June 3, 1865, he was the second son of Edward VII., then Prince

of Wales, and his wife Alexandra, and was baptised as George Frederick Ernest Albert. In 1877 he entered the navy and therein he served until 1892, when the death of his elder brother, the Duke of Clarence, made him heir to the throne. He was created Duke of York, and in 1893 married Mary, the only daughter of the Duke of Teck. He was Duke of Cornwall when his father succeeded to the throne in 1901, and at the end of that year was made Prince of Wales. In the meantime he went to Australia to open the first parliament of the new Commonwealth. He had previously travelled a good deal and between 1901 and 1910 he made other journeys through the Empire, notably to India and Canada.

On May 6, 1910, George became king, and on June 22, 1911, he was crowned in Westminster Abbey. In 1911 he was hailed as Emperor at the Durbar at Delhi. On his return he took up the heavy duties of his position, which, for the next 20 years he discharged with remarkable skill and success, not the least of his services being those rendered during the Great War. A serious illness which befell him in 1928-29 showed the extent of his popularity.

The King and Queen had six children, of whom five survive. Four are sons, viz.: Edward, Prince of Wales, Albert, Duke of York, Henry, Duke of Gloucester, and George. The only daughter is Mary, Countess of Harewood who in 1932 became Princess Royal.

George V. King of Hanover. Born in Berlin, May 27, 1819, he was the son of Ernest Augustus, Duke of Cumberland, fifth son of George III. In 1851 George succeeded his father as King of Hanover, and he reigned until 1866 when, having sided with Austria against Prussia, he was expelled from his country. He made his home in Austria where he mainly lived until his death, June 12, 1878. His only son was Ernest Augustus, Duke of Cumberland.

George I. Name of two kings of the Hellenes. **George I.** was born at Copenhagen, Dec. 24, 1845, being a son of King Christian IX., and a brother of Queen Alexandra. He was chosen King of Greece in 1862, and reigned over that country for 50 years. On March 18, 1913, he was murdered at Salonika.

George II. was a grandson of George I. He became king in Jan. 1922 on the death of his father, Constantine, but abdicated in 1923.

George British prince. The fourth and youngest son of King George V., he was born at Sandringham, Dec. 20, 1902, his full name being George Edward Alexander Edmund. Having passed through Osborne and Dartmouth, he entered the navy and served with it for some years. This was followed by a spell in the Foreign Office, but much of his time has been taken up with public functions. In 1931 he went with the Prince of Wales to South America.

George David Lloyd. British statesman. Born at Chorlton-on-Medlock, Manchester, Jan. 17, 1863, he was the son of William George, a schoolmaster. Owing to his father's early death he was brought up by his uncle, Richard Lloyd, at Llanystumdwy, N. Wales. He was articled to a solicitor at Portmadoc, and in 1884 began to practise on his own account at Caernarvon. In 1890, having taken a leading part in local politics, he was elected M.P. for the Caernarvon Boroughs, and in the House of Commons soon showed himself a clever debator. His opposi-

tion to Joseph Chamberlain and the Boer War made him a national figure.

In 1905 Lloyd George entered the Liberal Cabinet as president of the board of trade. In 1908 he succeeded Asquith as chancellor of the exchequer. In 1909 he introduced a budget that aroused bitter controversy, especially by its proposals for taxing land, which provoked a quarrel with the House of Lords by whom the budget was rejected. The upshot was two general elections in one year (1910) and the passing of the Parliament Act. The chancellor was then responsible for a great scheme of national insurance.

THE WAR YEARS. In August, 1914, Lloyd George supported the policy of declaring war. Early in 1915 he left the exchequer to become minister of munitions and soon afterwards helped to form the first coalition ministry. In July, 1916, he became secretary for war, and in December, dissatisfied with the way the struggle was conducted, he resigned and so brought the coalition ministry to an end. After negotiations, he himself became prime minister, with the Unionists under Mr. Bonar Law as his chief colleagues. As premier, Lloyd George introduced certain innovations into the government. He handed over the leadership of the House of Commons to a deputy, filled some of the chief offices of state with business men and formed a small cabinet, inside the larger one, to conduct the war. In 1919 he was Britain's chief representative at the peace conference at Versailles. He was supported by the verdict of the country given at an election in which women voted for the first time, a policy for which he was responsible.

POST-WAR. His premiership ended in Oct., 1922, when the Unionists withdrew from the coalition. Now estranged from the main body of the Liberals, but possessing party funds of considerable size, Lloyd George with a few followers occupied a detached position until a reunion with the other Liberals was effected in 1923. In 1926 he was chosen as the party leader, but there were Liberals, both inside and outside parliament, who refused to accept him. The election of 1929 placed the balance of power in the hands of the Liberals, but it was found impossible to secure complete unity among them.

In 1888 Lloyd George married Margaret Owen. A son, Gwilym, and a daughter, Megan, were elected to Parliament in 1929 and again in 1931.

George Henry. American economist. Born at Philadelphia, Sept. 2, 1839, he started his career as a printer, but later took to journalism. He made a study of economical questions, and in 1871 published *Our Land Policy*. It was amplified in *Progress and Poverty*, 1879, which achieved widespread popularity. In it he advocates land nationalisation to be effected by means of a single tax. He died Oct. 29, 1897.

Georgetown Seaport and capital of British Guiana. It is near the mouth of the Demerara River. There is a railway for some 78 miles along the coast. There is a good harbour and shipping is the main industry. Georgetown is sometimes called Demerara; its old name is Stabroek. Pop. (1931) 57,921.

George Town Capital and seaport of Penang, Straits Settlements. It stands on the Island of Penang, a British possession, and has an excellent harbour. Shipping forms the chief industry. Pop. 101,000.

Georgia Soviet republic, linked with the Soviet Union at Moscow. In the Caucasus area, it lies between the Black Sea, the Caucasus Mts. and Armenia, and covers 26,386 sq. m. Tiflis is the capital; other places are Batum and Poti. Agriculture is the chief industry, but the production of manganese and other minerals is important. Much land is covered with forests. There is a railway system of about 600 m. owned by the state.

In early days Georgia was conquered by Alexander the Great, but in 302 it became an independent country and a little later adopted Christianity. In spite of invasions, its people retained their independence until, in 1801, to save themselves from the Turks, they placed themselves under the protection of Russia. Their last king soon disappeared, and the country became a part of Russia.

In 1918 a republic was set up in Georgia, and in 1921 the Soviet form of government was adopted. In 1922 it united with Azerbaijan and Armenia to form the Trans-Caucasian Federation of Socialist Soviet Republics. It includes the little Soviet republics of Abkhazia and Adjara. Pop. (1931) 2,883,200.

Georgia Southern state of the United States, one of the 48 original members of the union, it has a coastline on the Atlantic Ocean, fringed by a number of islands. It covers 59,265 sq. m. Atlanta is the capital; other places are Savannah, the chief seaport, Augusta, Macon and Columbus. The state produces cotton and maize, tobacco and fruit. Much of the land is covered with forests, and there are important fisheries and mines. The chief rivers are the Savannah, Altamaha and Ogeechee.

Georgia was settled by George Oglethorpe who made it a home for debtors, the first band arriving in 1733. He named it after George II. It entered the union in 1788. In 1861 the state seceded, but it was admitted again in 1870. It is governed by a legislature of two houses, and sends two members to the Senate and 12 to the House of Representatives at Washington. Pop. (1930) 2,903,506.

Georgian Architectural style adopted in Great Britain during the Georgian period, 1714-1820. It was due largely to the influence of Sir Christopher Wren. While following the classical tradition as transmitted through the Renaissance, Georgian architecture developed its own special treatment seen in its simplicity of plan and elevation, and among other things the usual addition of a Greek portico to a building. Blenheim, designed by Vanbrugh, and Somerset House, by Chambers, are good examples of this style.

Georgian Bay North-eastern area of Lake Huron. Its waters are entirely Canadian and parts of the province of Ontario cut it off almost wholly from the main part of the lake. It is 120 m. long and 50 m. across and some of the rivers of Ontario flow into it. The Trent Valley canal connects it with Lake Ontario.

The Georgian Bay Canal, as yet incomplete, is intended to unite Georgian Bay with the St. Lawrence at Montreal, thus bringing the Great Lakes 800 m. nearer to that city and to Europe.

Georgics Poem by Virgil. In Greek the word means husbandry, and the poem deals with pastoral life. It was written about 40 B.C., and is in four books.

Scholars regard it as a perfect example of style and thought.

Geranium Genus of herbs native to temperate regions. They have regular flowers generally rosy, purplish red or blue in colour, and divided leaves; eleven native British species are popularly called crane's bill. Many exotic forms are favourite garden varieties. Allied herbs, with irregular flowers, varying in colour from scarlet to white, form the distinct genus *pelargonium*. In popular and nurserymen's usage such discarded names as scarlet and ivy-leaved geranium are used for cultivated varieties of *pelargoniums* brought from S. Africa. See CRANE'S-BILL, PELARGONIUM.

Germ Rudimentary form of 'a living thing, whether plant or animal, the vital particle from which an organism may develop. It is also used for the origin or first principle of anything. Some germs, those from decaying matter, for instance, are injurious to health and preparations used to destroy these are called germicides.

German Catholics Religious community separated from the Roman Catholic Church in 1844. Led by two ex-priests, Johann Ronge and Johann Czerski, it repudiated clerical celibacy and aimed at breaking the papal power in Germany. Restrictions were placed upon the dissidents, internal dissensions arose, and a dwindling remnant joined the nationalistic body of Free Congregations in 1859.

Germanicus Caesar. Roman soldier. Born in 15 B.C., he was a nephew of the Emperor Tiberius and was early put in command of an army. He fought against the Gaulish and Germanic tribes, winning a great victory over Arminius in A.D. 16. Afterwards he was sent to Asia and he was at Daphne near Antioch when he died in A.D. 19, perhaps by poison. Germanicus was the father of Caligula and the grandfather of Nero.

German Measles Contagious disorder occurring mostly in children. Also called rubella, it is usually mild, and is characterised by a pink eruption. Although somewhat resembling both measles and scarlet fever, it bears no organic relation to them. Its cause, bacterial or otherwise, is undiscovered. There may be headache, shivering, a little catarrh and rise of temperature, not above 100°F., followed by a slight rash which disappears within a week, during which confinement to bed and thorough isolation are necessary.

German Silver Silver white alloy. Also known as nickel silver, it is composed of varying proportions of copper, nickel and zinc. When first prepared, it has a crystalline structure, but after careful annealing it becomes malleable and can be worked like brass. It is harder than silver and takes a high polish, but acquires a yellow tarnish after exposure to air. German silver is used largely as a basis for electroplated goods such as spoons, forks, etc.

German Volga Republic Soviet Republic. One of eleven autonomous republics in the Russian Socialist Federal Soviet Republics, it was created in 1924. It is enclosed by the Lower Volga Area, except in the south-east. The government is by Central Executive Committee and Council of Peoples'

Commissaries, the capital being Povorok, on the Volga, with a population of 34,352. There are railways running from Moscow to Astrakhan and Uralsk, with a junction at Urbakh. The chief crops are wheat, barley and rye, and there are agricultural and peasant industries.

Germany Federal republic of Europe. It occupies an area of 171,910 sq. m. In the central part of the continent, its boundaries being settled by the treaty of Versailles. Its coastline on the Baltic Sea and a shorter one on the North Sea, together amount to some 1200 m. Its land frontiers touch France, Belgium, the Netherlands, Denmark, Poland, Czechoslovakia, Austria and Switzerland. Much of the country is a great plain, but in the centre, south-east and west are ranges of mountains, the Harz, the Black Forest, the Erzgebirge and the Taunus. The highest peaks are in the south-west, where are some Alpine ranges; there a few exceed 9000 ft. in height. The chief rivers are the Rhine, Elbe, Weser, Oder and Main, but there are many others, for the land is well watered. There are lakes, the largest being Bodensee. The land includes Rügen and other islands in the Baltic, and the Frisian Islands in the North Sea.

TERRITORIAL DIVISIONS. The German federation consists of 18 states. Much the largest is Prussia, which occupies more than half the total area. Next in order of size are Bavaria, Württemberg, Baden, Saxony, Mecklenburg-Schwerin, Thuringia, Hesse, Oldenburg, Brunswick and Mecklenburg-Strelitz. The others, which include three free cities, Hamburg, Lübeck and Bremen, are all less than 1000 sq. m. in extent. Berlin is the federal capital but the supreme court sits at Leipzig.

The area does not include the Saar district which is under the League of Nations. Berlin is the most populous city, and Hamburg the greatest seaport. There are no fewer than 43 other cities with over 100,000 inhabitants, and five of these, Cologne, Munich, Leipzig, Dresden and Breslau, have each over 500,000. The total population is 63,181,619 or 247 to the square mile. Of these 40,000,000 are Protestants, mainly Lutherans, and 20,000,000 Roman Catholics. Since 1918 there has been no state church. The education is of a high standard. There are 23 universities and many technical and other colleges.

CONSTITUTION. The constitution provides for a president and two houses of parliament, the Bundsrat and the Reichstag. The former consists of 68 members representing the states, Prussia electing 27. The latter consists of a varying number of members elected by all adult males and females. A cabinet that carries on the work of government is responsible to the legislature. The president is elected by all voters and holds office for seven years. The republican flag is black, white and red.

ECONOMICS. Germany is an agricultural country and a large part of it is well farmed. Rye, oats, wheat, barley and potatoes are produced on a large scale, and great numbers of cattle are kept. Pigs are reared but sheep are less plentiful. The vine is grown in the warmer districts, as is tobacco. Large areas are left to forests, and forestry is conducted on scientific lines. The fisheries, especially in the North Sea, are important.

Certain parts of Germany are rich in coal and other minerals, and there the great manufacturing centres have sprung up. Westphalia

and Silesia contain the coal mines. Iron ore is produced in Silesia and in the Harz, where silver is also mined. Iron and steel are manufactured in the great towns of Westphalia and the lower Rhineland, part of Prussia and to a lesser extent, in Thuringia. Saxony is the chief centre for the production of cotton, woollen and other textiles. There are a great number of other industries. Berlin has become famous for its production of electric appliances. The chemical industry is flourishing and the production of clothing and foodstuffs employ a large number of people.

Germany has an extensive and unified railway system, owned by the state but managed by a private company. Its canals are many and excellent; they connect the great rivers with each other and have a total length of about 8000 m. Shipping is another great industry; Hamburg is the largest port with Bremen, Stettin and Pöden next in importance. Owing to the size of the rivers there are many flourishing river ports. Germany has a central bank, the Reichsbank and four other banks have the right to issue notes. Since 1924 the currency has been on a gold basis, with the reichsmark as the unit. The metric system of weights and measures is used.

HISTORY. For centuries Germany was little more than a geographical expression. It was divided into some hundreds of states, big and little, each with its own ruler. They owed allegiance to the head of the Holy Roman Empire, who was also German king, but as the years went on he became less and less concerned with Germany. In the 17th century this area of Europe was ravaged by the Thirty Years' War. In 1815 a federation of the German states was established, but this only lasted until 1866. Its place was then taken by the North German Confederation, in which Bavaria and the states of the south had no part.

In 1871 the German Empire was founded, the king of Prussia becoming emperor. This included all the German states except Austria. After a flourishing career, it fell to pieces as a result of the Great War, when Germany, by the Treaty of Versailles, surrendered Alsace-Lorraine to France, parts of Silesia, Prussia and Posen to Poland and Czechoslovakia, and small areas to Denmark and Belgium. Danzig was formed into a free state. Altogether Germany ceded 27,352 sq. m. and about 6,500,000 people. She also surrendered her colonies in Africa and the South Seas.

The first president of the republic was Friedrich Ebert, under whom the country was in a deplorable condition, both politically and financially. The mark fell to nothing and the failure to pay reparations led to the occupation of the Ruhr district by the French.

An improvement began in 1923 when Gustav Stresemann became chancellor. Reform of the currency was followed by the signing of the Pact of Locarno and the entry of Germany into the League of Nations. In 1925 Hindenburg was elected president and the Dawes plan for the payment of reparations worked for a time. The death of Stresemann in Oct., 1929, marked the beginning of a change for the worse. Like other countries Germany was badly hit by the economic depression. She declared herself quite unable to make reparation payments and there was a good deal of political unrest. Under Adolf Hitler a party called the Nazis became very strong and there was talk of a

restoration of the monarchy. The Nazis came into conflict with the authorities about the wearing of their uniform and other matters, and Bavaria threatened to leave the federation. In 1932 Hindenburg was re-elected president but Brüning, who had proved a capable chancellor, was forced to resign. His successor, von Papen, represented the country at Lausanne in July, 1932, when the question of reparations was settled, Germany undertaking in return for their abandonment to make a payment of £150,000,000 to a fund for European reconstruction.

Germiston Town of the Transvaal, S. Africa. It is 36 m. from Pretoria and 9 from Johannesburg, being connected to both by railway. On the Rand, it is an important mining centre, with gold refineries and manufactures of chemicals, cereal products, etc. Here is the station which supplies electric power to the mines. Near is Victoria Lake, the largest sheet of water in the Transvaal. Pop. (1931) 23,953 whites.

Gerrard's Cross Village of Buckinghamshire, It is 4 m. from Beaconsfield and 18 from London. There is a fine common. Near is Bulstrode Park, once the seat of the Duke of Portland. Pop. 2200.

Gerrymander American expression, which has been adopted into the English language, and denotes the arrangement of election districts in such a way that an unfair advantage is given to the party in power. The word is derived from Elbridge Gerry, an American politician, and "mander" in "salamander," one of the districts in Massachusetts formed when Gerry was governor, having an alleged resemblance to a salamander.

Gesso Form of applied decoration. It is used to ornament small boxes, bowls and other household articles, but can also be used, as it was in the Queen Anne period, for mirrors and chairs. Gesso powder is a paste composed of plaster of Paris and glue. The design is first traced on the article and then the paste applied in the form of leaves, flowers or any other desired pattern. After painting, the piece is varnished.

Gethsemane Plantation at the foot of the Mount of Olives. Thither our Lord retired across the Kidron after the Last Supper with His disciples; it witnessed the agony and the betrayal. The traditional site is now in Franciscan hands, an ancient cave adjoining being the reputed Grotto of the Agony.

Gettysburg Town of Pennsylvania, U.S.A. It is on the railway 70 m. from Washington and was named after James Gettys, a general in the War of Independence. Near here, on July 1-3, 1863, one of the decisive battles of the American Civil War was fought, when the Southern general, Robert E. Lee, was defeated by the Northerners under Meade. The battle was fiercely contested for three days, and in the end Lee was forced to retreat, but his genius enabled him to get his army across the Potomac without undue loss. The losses were over 20,000 on each side, about 6000 being killed.

In Nov. 1863, part of the battlefield was dedicated as a national cemetery, and in this are several memorials. On this occasion Lincoln made the speech, which, although quite short, is one of the jewels of English prose.

Geum Genus of hardy rosaceous perennials. It is of dwarf growth, and contains many species. The variety *G. avens*, largely grown in gardens, has handsome showy flowers, Mrs. Bradshaw (scarlet) and Lady Stratheden (yellow), being popular varieties. Several species including *G. reptans* and *G. montanum* are useful in the rock garden. The wild herb bennet, or wood avens, *G. urbanum*, has small yellow flowers and its aromatic root possesses medicinal qualities.

Geyser Type of siliceous hot spring. It is characterised by violent and explosive eruptions of steam and boiling water alternating with quiet periods. Geysers occur in volcanic areas in New Zealand, and in the Yellowstone Park, Wyoming, U.S.A. and in Iceland. They are due to the gradual heating of water in cavities and fissures in the rock, the hot water under high pressure dissolving out large quantities of silica. When a sufficiently high temperature is reached, violent ebullition of steam is produced.

Also a domestic apparatus for obtaining a quick supply of hot water. It consists of a cylinder containing a coil of copper or brass tubing connected with the water supply; and beneath the container is an arrangement of atmospheric gas jets by which the water stream through the coil is heated rapidly.

Ghats Mountain ranges of India, enclosing the Deccan tableland. The East Ghats average 1500 ft. in height and comprise granite and gneiss spurs and range along the Madras coast from Orissa to the Nilgiri hills. The West Ghats, averaging 3000 ft. in height, comprise the more precipitous Sahyadri range of trap rocks, and stretch from the Tapi valley south for 800 m. to the Palghat gap.

A Hindu word meaning landing, stairs or passes, the term ghat is also applied in India to flights of steps along a river's bank. Such are frequently seen along the Ganges, notably at Benares, where are the burning ghats, the Hindu's cremation ground.

Ghazi Turkish title of honour. Derived from an Arabic word meaning "warrior," a ghazi is a Mohammedan who has vowed to exterminate unbelievers by the sword. The Turks use it, meaning "The Victorious," as a title of honour for military officers who have distinguished themselves against non-Mohammedan foes. It is especially applied to Mustapha Kemal (q.v.).

Ghazni City of Afghanistan. It stands in the mountains, about 80 m. from Kabul, and is on the caravan route between Persia and India through the Gomal Pass. The old city, which is now in ruins, was once the capital of a great empire. It was destroyed about 1220 by the Mongols and near it the new city was built. It has many shrines visited by pilgrims, two towers and other features of interest. During the Afghan Wars Ghazni was taken by the British in 1839 and in 1842.

The dynasty of the Ghaznevids was founded in 962 and ruled at Ghazni until 1184, when the Ghur dynasty took its place. The Ghaznevid Empire covered a great part of Asia; its most famous member was Mahmud, whose court was renowned for its culture and magnificence.

Gheel Town of Belgium, 28 m. from Antwerp. It is a centre to which insane persons have been sent since the 13th century. The mentally afflicted are quartered on the inhabitants, who make a living by

caring for them. The whole business is under official direction, with medical men and other inspectors in attendance. Pop. 14,500.

Gheluvelt Village of Flanders, 4 m. from Ypres, on the road to Menin. Being in the Ypres salient there was almost constant fighting here from 1914 to 1918. This was especially desperate during the first battle of Ypres, towards the end of 1914, and in the spring of 1915. The village was taken and retaken also in 1917 and 1918. Here on Oct. 31, 1914, the 2nd battalion of the Worcestershire Regiment made its famous stand.

Ghent City and river port of Belgium. 32 m. from Brussels, at the junction of the Rivers Lys and Scheldt. It is also a railway junction, and a ship canal connects it with the sea. Branches of the rivers and canals flow through the city, adding much to its picturesque appearance, and over these there are more than 200 bridges. The chief buildings are the cathedral, with its altar piece painted by the Van Eycks, the hotel de ville, the law courts, a modern building, and the belfry, an old one. There are several museums. Other historic buildings are the Château du Diable, a 13th century building, the Great Beguinage and the Little Beguinage. There is a castle, once the residence of the Counts of Flanders. The university, founded in 1816, is a centre of Flemish culture. The French call the city Gand.

Ghent has cotton, linen and other manufactures, and its industries include also engineering works and sugar refining. The market is famous and there is a large transit trade. In the neighbourhood many flowers are grown for export.

In the 13th century Ghent became a flourishing trading centre, and, for the next 300 years, was one of the richest in Europe, its citizens being among the most independent. Here the Emperor Charles V. was born. In the 16th century its prosperity was destroyed by the Spaniards, who entered it as conquerors in 1584, but it recovered in the 19th. In 1814 a treaty was signed here between Great Britain and the United States. The city was in the possession of the Germans from Oct., 1914, to Oct., 1918. Pop. (1930) 169,322.

Ghetto Part of a city or town inhabited by Jews. The English equivalent is Jewry.

Ghibelline Political party that flourished in Germany and Italy in the Middle Ages. It is a corruption of Walbungen, the name of a castle owned by Conrad III., the German king and a member of the Hohenstaufen family. Conrad's followers, in a fight against Welf of Bavaria, used Walbungen as a battle cry, in opposition to the enemy's cry of Welf. These names became corrupted by the Italians to Ghibelline and Guelph. The Ghibellines became the name of the party opposed to the Guelphs, on whose side the Pope was usually found. The feuds between the Guelphs and the Ghibellines lasted for over 200 years.

Ghiberti Lorenzo. Italian sculptor. Born at Florence in 1378, he became a goldsmith. He is famous, however, for the bronze gates, the finest of their kind in the world, which he designed for the baptistery at Florence. On these he worked for over 40 years. He died in 1455.

Ghirlandajo Domenico. Italian painter. Born at Florence

In 1449, Ghirlandajo, whose full name was Domenico Tommaso Corrado Bigordi, was apprenticed to a goldsmith and studied painting under Baldovinetti. He was for a time the master of Michelangelo. He painted many excellent frescoes and also works in mosaic. He died Jan. 11, 1494.

His best frescoes are in the Sassetti Chapel in S. Trinità and the choir of Sta. Maria Novella, Florence. Other works of his are in Rome and the Louvre, Paris.

Ghost Disembodied spirit said to appear to the living. The belief in ghosts is widespread and is found in all ages and amongst almost all peoples. Some are attached to a particular house, perhaps associated with a particular crime and appear at a particular hour. Certain families have their ghosts. Some of these appearances are apparently well authenticated, but the explanation must be sought in the mental condition of the person visited by the ghost.

Ghoul Malignant Oriental spirit supposed to frequent burial grounds for the purpose of feeding on corpses. The word, derived from the Arabic *ghul*, is used also to describe one who delights unnaturally in horrors.

Giant Human being of abnormally great stature. Greek mythology describes beings of monstrous size and strength, e.g., Briareus and Polyphemus. Giants appear in the Old Testament, notable ones being Og and Goliath, and their exploits are a favourite subject in the folklore of most European countries, where giants are usually wicked and come to an ignoble end. Buvian introduces giants into his immortal allegory.

Charles Byrne, an Irishman, who lived in the 18th century, was 7 ft. 9 in. in height. In 1905 a Russian named Machnov, was exhibited in London; he measured 9 ft. 3 in.

Giant's Causeway Columnar basalt formation on the north coast of Co. Antrim, Ireland. Situated 2½ m. N.E. of Bushmills, it is divided by whin dykes into the Little, Middle and Grand Causeway, and simulates a pier 700 ft. long, 350 ft. broad, and 30 ft. high, and composed of 40,000 perfectly-fitting, accurately-jointed polygonal pillars from 15 to 20 in. across. The so-called Giant's Organ adjoins. It is said to have been caused by cooling and cracking lava.

Giant's Kettle, or giant's cauldron, is the popular name for a glacial pot-hole. These cylindrical holes were caused in rocks by subglacial streams, laden with gravel, etc. There are examples in the Alps and Germany.

Gibbet Wooden upright with projecting beam for hanging malefactors in chains or irons after execution. Recognised by law in 1752, the practice ceased in 1834. Gibbet law entitled Halifax, in Yorkshire, to execute thieves on a primitive guillotine called the Halifax gibbet; this operated between 1541 and 1650. See GALLOWES.

Gibbon Genus of manlike or anthropoid apes (*hylobates*). Native to the Indo-Malay region and normally about 3 ft. high, they are slenderly built and tailless, with naked callosities on the buttocks, and arms reaching to the ankles. Though frequently walking upright on the ground, they are tree dwellers and are gregarious, noisy and extraordinarily agile. The largest is the Sumatra siamang; others are the Burmese white-handed gibbon, the Assamese hoolock, the

Siamese crowned or tufted gibbon, and the Javanese silver wou-wou. Although readily tamed, they do not live long in Europe.

Gibbon Edward English historian. He was born at Putney, April 27, 1737, and educated at a private school, then at Westminster, and in 1752 he went to Oxford for a short time. From 1753-58 he lived at Lausanne. Returning to England he lived in Hampshire, where he served in the militia, and in 1761 wrote in French his *Essay on the Study of Literature*.

In 1763 Gibbon visited Rome and there decided to write his immortal work, which he called *The Decline and Fall of the Roman Empire*. He did not actually begin it, however, until 1779, and the first volume was not published until 1776. For eleven further years, the last four in Switzerland, he worked at it and finished it on June 27, 1787, a passage in his *Autobiography* describing his emotion on that memorable night. The last three volumes were published in 1788. In 1793 he returned to England, and died in London, Jan. 16, 1794.

Gibbon's *Decline and Fall* is one of the world's great books. Its stately and sonorous style, alone, make it worth reading, but it is equally notable for the brilliant epigrams in which the writer generalises, from time to time, on the events he is relating. As history, it is by no means obsolete, although on some points its facts have been corrected by more recent scholarship. It remains, however, a unique and memorable piece of work of a kind which will, in all probability, never again be attempted. The best edition is edited by J. B. Bury.

Gibbons Grinling English wood carver. Born April 4, 1648, in Rotterdam, he early came to London. John Evelyn introduced him to Charles II., and his work soon became widely known. He worked for Wren, carving the choir stalls in S. Paul's Cathedral, and other work by him is in Canterbury Cathedral, Windsor Castle, Chatsworth and elsewhere. His carvings in many churches and large houses show great delicacy of work and truthfulness of imitation, his designs being chiefly of foliage, flowers, fruits and birds. He died in London, Aug. 3, 1721.

Gibbons Orlando English composer. Born at Cambridge in 1583, he became a chorister at King's College there. In 1604 he was appointed organist of the Chapel Royal and in 1623 became organist of Westminster Abbey. He died June 5, 1625, at Canterbury, where he had gone, with some music composed by him for the occasion, to attend the reception of Henrietta Maria, the wife of Charles I. He wrote some beautiful chamber music and madrigals, but is best known for his church music, some compositions of which are still in general use.

Gibeon Ancient town in Palestine. Situated on a solitary hill, 5 m. N.W. of Jerusalem, it was an important Philistine stronghold, whose inhabitants tricked Joshua into granting a truce (Jos. ix.). Here David's and Ishbosheth's champions fought, here Joab murdered Amasa, and here Solomon offered sacrifices and obtained the gift of wisdom. The town is now known as El-Jib.

Gibraltar Town and fortress of Spain, belonging to Great Britain. It stands on the peninsula at the end of which is Europa Point, and is connected with the mainland by an isthmus. It covers just under

2 sq. m. The town is divided into the north town and the south town. The chief buildings are the Anglican Cathedral, several churches and the castle; there are also barracks, residences for the officials, and other buildings for the public service, as well as a racetrack and other sporting attractions. Gibraltar is strongly fortified and has a large and safe harbour, which is a station of the British fleet. The colony is under a governor, who is assisted by an executive council. Pop. 20,600.

Facing the sea is the **Rock of Gibraltar**, and on the African coast opposite is Mount Abyla, the two being known to the ancients as the pillars of Hercules. Between them are the Straits of Gibraltar which lead from the Atlantic Ocean into the Mediterranean Sea. At the narrowest point the Straits are only 9 m. across.

Owing to its position, Gibraltar has always been a coveted stronghold. For some centuries after 711 it belonged to the Moors. In 1462 it was taken by the Castilians, and was part of Spain until captured in 1704 by a British and Dutch fleet under Sir George Rooke. The French and Spaniards tried hard to regain it in 1704-05, but in vain, and in 1713 it was surrendered to Great Britain. In 1736 the Spaniards again besieged it, and made another and greater attempt in 1779, when they began a siege that lasted for over 3 years, ending in Feb. 1783.

Gibson Charles Dana. American artist. Born at Roxbury, Mass., Sept. 11, 1867, he studied in New York and Paris, and began his artistic career by contributing illustrations to various periodicals. His drawings of a type of American girl, the Gibson girl, secured him great popularity. Later he turned to portrait painting in oils. In 1920 he purchased the controlling interest in *Life*.

Gibson John. British sculptor. Born in 1790 near Conway, his early years were passed in Liverpool where he began to carve. In 1816 he exhibited his first piece of sculpture in London, and then studied in Rome as a pupil of Canova. He spent most of his life in that city, and died there, Jan. 27, 1866. He was elected A.R.A. in 1833 and R.A. in 1836. Gibson left his money and some of his works to the Royal Academy, and they are now in the Gibson Gallery at Burlington House, London.

Gide André Paul Guillaume. French novelist and critic. Born in Paris, Nov. 21, 1869, his first book was *Les Cahiers d'André Walter* (1889), and was followed by *Faustus* (1895) and *Les Nouritures Terrestres* (1897). His first novel, *L'Immoraliste*, was a masterpiece, and *La Porte Étroite* (1909) and *Isabelle* (1911) were characterised by the same sureness of touch. *Caves du Vatican* (1914) was less successful, and *Les Four Monnaies* (1927) and *Si le Grain ne Meurt* (1924) are unequal. *Le Retour du Tchad* was published in 1928. Gide insists on sincerity in life, without any fixed or moral beliefs.

Gidea Park District of Essex, near Romford, 13 m. from London, on the L.N.E. Ry. It was long the park around a residence called Gidea Hall, which in 1910 was sold and laid out as a garden city. Raphael Park is an open space.

Gideon Hebrew warrior and judge. The son of Joash, he dwelt at Ophrah near Shechem. He routed the Midianites and overthrew the altars of Baal. Although declining the throne, he judged the people for

40 years. The textual inconsistencies concerning him may denote unskilful revision of the Old Testament, and a consequent confusion of two heroes, Gideon and Jerubbaal (Judges, vi.-viii.).

Giggleswick Village of Yorkshire (W.R.), 14 m. from Skipton, on the L.M.S. Ry. The Ribbles flows by it. It is famous for its school founded in 1507, and now a large public school. It has a beautiful chapel designed by Sir T. G. Jackson.

Gilbert Group of islands in the Pacific Ocean. They belong to Great Britain which annexed them in 1915, and are part of the Gilbert and Ellice Islands Colony and lie on the equator. There are many islands, but only 18 are inhabited. They cover 166 sq. m. and produce copra, phosphates and fruit. The government is in the hands of a resident commissioner, who is responsible to the high commissioner of the Western Pacific. Pop. 23,100.

Gilbert Sir Alfred. English sculptor. Born in London, Aug. 12, 1851, he studied in London, Paris and Rome, first exhibiting at the Royal Academy in 1882. In 1892 he was elected a Royal Academician, and 1900-09 was Professor of Sculpture at the Royal Academy. Gilbert is considered by many to be the greatest living English sculptor. Among his many works are the Eros Fountain in Piccadilly, the Kiss of Victory, and the statues of Queen Victoria at Winchester, of John Bright at Westminster, and of Queen Alexandra at Marlborough House. Gilbert was knighted by the King in June, 1932.

Gilbert Sir Humphrey. English navigator. He was born about 1539 at Dartmouth, and was educated at Eton and Oxford. He fought against the French in 1563 and in Ireland in 1566, being given a command in Munster in 1569. In 1570 he was knighted; he was M.P. for Plymouth in 1571, and in 1572 led an unsuccessful expedition into the Netherlands. In 1578 he was granted a charter by the queen to discover and establish a colony. His first expedition was a failure, but in 1583 he took possession of Newfoundland, where he founded a settlement. The *Squirrel*, the smaller of his vessels, in which he was returning to England, foundered, Sept. 9, 1583, and all were lost.

Gilbert John. American film actor. Born at Logan, Utah, July 30, 1897, he worked as a writer, director and editor of motion pictures. He achieved fame as an exponent of passion in *Big Parade*, *The Merry Widow*, *Flesh and the Devil*, and other pictures.

Gilbert Sir John. English painter and illustrator. Born at Blackheath, July 21, 1817, he entered a city office, but soon abandoned business to teach himself art. In 1871 he was knighted and 5 years later was elected R.A. Another honour was the presidency of the Royal Society of Painters in Watercolour. He died Oct. 5, 1897. Gilbert worked both in oils and watercolours, but his best work was done as an illustrator of periodicals and books, notably Shakespeare's plays and the works of Cervantes and Scott. Many of his pictures are in the Guildhall, London.

Gilbert Sir William Schwenck. English dramatist. Born in London, Nov. 18, 1836, he graduated at London University, was a clerk in the privy council office, 1857-62, and in 1861 was called to the bar. He contributed to *Fun*, for which he wrote his

Bab Ballads, and produced, in 1866, his first play, a burlesque, *Dulcamara*, which was followed by many others. These include the comedies *Pymalion* and *Galatea* and *The Wicked World*; also several dramas of a more serious kind. In 1871 he began to work with Sir Arthur Sullivan (*q.v.*), the composer, and from 1875 to 1896 they produced a series of topical comic operas, which had an instant and sustained success. They include *Patience*, *Iolanthe*, *The Mikado*, *H.M.S. Pinafore*, *Trial by Jury*, *The Pirates of Penzance*, *The Yeoman of the Guard* and *The Gondoliers*. For these Gilbert wrote the words which contain many references to the law. Gilbert was knighted in 1907, and was drowned May 29, 1911.

A Gilbert and Sullivan Society has been founded to keep alive the interest of the plays.

Gilbertines

English monastic order. Founded by S. Gilbert at Sempringham, Lincolnshire, in 1135, it comprised nuns following the Cistercian form of the Benedictine rule, and Augustinian canons regular. They lived in double monasteries, stringently segregated, and received papal approbation in 1148. Their habit was black with lamb's-wool lining and a white cloak. The superior was called the Master of Sempringham. At the founder's death in 1189 there were 13 monasteries, with 1700 members; at the Dissolution in 1537 there were 25.

Gilbey Sir Walter. British merchant. Born at Bishop's Stortford, May 2, 1831, he began his career in an estate agent's office at Tring. Later he and his brother entered business as wine merchants. In 1867 the firm acquired possession of the Pantheon in Oxford Street, London, and in 1875 purchased vineyards in the Médoc district of France and two whisky distilleries in Scotland. Gilbey, who became a baronet in 1893, was also interested in the breeding of shire and other horses, and was President of the Royal Agricultural Society in 1895. On his death, Nov. 12, 1914, the baronetcy passed to his son.

Gildersome

Urban district of Yorkshire (W.I.). It is 5 m. from Leeds, on the L.N.E. Rly. Coal mining is the main industry. Pop. (1931) 3041.

Gilead

Mountainous region east of the Jordan. Separated from Moab on the south by the Arnon, its usual northern boundary was the Yarmuk, but the Old Testament sometimes extends Gilead to Hermon.

Giles

Patron saint of beggars, cripples and lepers. He is said to have been born towards the end of the 7th century and to have been of a noble Athenian family. Emigrating to France, he lived the life of a hermit, and founded an abbey near Nîmes. His day is celebrated on Sept. 1.

Gilgal

Several places in Palestine mentioned in the Old Testament. One, 3 m. east of Jericho, was Israel's first camping place after entering Canaan. Another, 7 m. north of Bethel, was Elisha's abode.

Gilgamesh

Hero of a Babylonian epic. This important and popular literary work comprises 12 cuneiform tablets. Each covers an adventure directly or indirectly associated with the hero and remarkably paralleling the labours of Hercules. One tablet narrates the Babylonian version of the Biblical flood. The epic is fragmentary.

Gill

Organ of respiration in water-dwelling animals. Gills consist of simple or

branched processes richly supplied with blood-vessels and covered by a delicate membrane, thus giving a larger surface for the absorption of the oxygen dissolved in the water. They are present in crustaceans, molluscs and fishes, and in the larval stage of the frog and its allies. In fishes the gill system is complex and is contained either in separate pouches or in one branchial chamber.

Gill

English measure of capacity. It contains 7.219 cubic in. and 4 gills go to a pint. Formerly in Scotland and the north of England, a gill was half a pint.

Gill

Sir David. Scottish astronomer. Born in Aberdeen, June 12, 1843, he studied at Aberdeen University, soon developing an interest in astronomy. After having had charge of a private observatory he was, in 1879, appointed Astronomer Royal at the Cape of Good Hope. He published a number of star catalogues and works on astronomical subjects, and his work in connection with various geodetic surveys, together with many important investigations, greatly enhanced his reputation. His organising ability was well shown in his expedition to Ascension Island to determine the solar parallax in 1877. In 1900 he was knighted, and died Aug. 27, 1914.

Gill

Eric Rowland. English sculptor. Born at Brighton, Feb. 22, 1882, he was apprenticed to an architect, but preferred letter-carving, and in 1910 produced his first sculpture, "Madonna and Child." He became a Roman Catholic in 1913, and was commissioned to execute the Stations of the Cross for Westminster Cathedral. After the War he carved "Christ driving the Moneylenders from the Temple" for Leeds University War Memorial, and has done many other sculptures, including "St. Sebastian," "Torso," "Adam and Eve" (headless), and "Deposition."

Gillingham

Borough of Kent. It stands on the Medway, adjoining Chatham, 36 m. from London, by the S. Rly. An industrial area, bricks and cement are made, the dockyard at Chatham providing other employment. Gillingham was a market town in the 14th century and was long a station of the English navy. Pop. (1931) 60,983.

Gillingham

Market town of Dorsetshire. An agricultural centre, it is situated on the Stour, 10½ m. from London, by the S. Rly. Pop. 3570.

Gillott

Joseph. English pen maker. Born at Sheffield, Oct. 11, 1799, he commenced work as a cutter, moving to Birmingham in 1821. In 1830 he started experimenting in the making of steel pens, obtaining flexibility combined with hardness by cutting central and side slits and cross training the point. After a time he established a factory, which brought him a fortune, much of which he spent on art. He died Jan. 5, 1873.

Gillow

Robert. English craftsman. About 1730 he began to make furniture in Lancaster. Later he moved to London where he carried on business with his sons until his death in 1773. The sons, Robert, Thomas, and Richard, continued the business, which became Gillow & Barton, and were the leading furniture makers of the time. Hepplewhite and Sheraton furnished designs for pieces which were made by the Gillows.

Gillray

James. British caricaturist. Born 1757, he was apprenticed to an

engraver and later studied at the R.A. schools in London and under Bartolozzi. In 1779 appeared his first signed caricature, and for over a quarter of a century his political satires continued to delight a wide public. He died insane on June 1, 1815.

Gillyflower Name applied by Chaucer, Spenser, Shakespeare and old writers generally to the clove pink or clove gillyflower (*dianthus caryophyllus*). It is an adaption of the French *giroflée*. Later writers and nurserymen apply it to the stock or stock gillyflower, *malthiola*, the wallflower or wall gillyflower, *cheiranthus*, the dame's violet, or night-scented gillyflower, *hesperia*, and others.

Gilmour Sir John. Scottish politician. Born May 27, 1876, the son of a baronet, he was educated at Trinity College, Glenalmond, and Trinity College, Cambridge. After serving in S. Africa, he entered politics and was elected Unionist member for East Renfrewshire. In 1918 he was elected for the Pollack division of Glasgow, and in 1919 became a Unionist whip. In 1921-22 he was a junior Lord of the Treasury, and from 1924-29 Secretary for Scotland. In 1931 he became Minister for Agriculture, and as such attended the Ottawa Conference. In Sept., 1932, he succeeded Sir Herbert Samuel as Home Secretary.

Gimcrack Name of a famous English racehorse. In its honour a racing club was founded in 1767 and a race, the Gimcrack Stakes, is run every August at York.

Gin Spirit distilled from malt and maize grain in a patent still, and flavoured with juniper berries. Other aromatic substances, such as orris root, cardamoms, cassia, and coriander seeds, are also used to flavour it. The percentage of alcohol varies from 40 to 50, and what medicinal value gin has is due to the oil of juniper. Dutch gin, one variety being schnapps or hollands, is made chiefly at Schiedam, Holland, from a mixture of barley malt and rye.

Ginchy Village of Franco. It is 7 m. from Albert and was the scene of heavy fighting during the battle of the Somme in 1916. The British took it on Sept. 10, 1916, but it was recovered in March, 1918, by the Germans, who held it until the final advance of the Allies. There is a memorial to the Guards who were in action here in Sept., 1916.

Ginger Rootstock of a perennial reed-like herb (*zingiber officinale*). Cultivated in antiquity as a spice, it is grown nowadays throughout the tropics, the best varieties coming from China and Jamaica. The irregular hand-like pieces, washed and dried, form coated or black ginger; washed, scraped and bleached they become uncoated or white ginger. The aromatic volatile oil and pungent resin are used medicinally. Young green rootstocks are preserved in syrup, or in crystallised sugar. In powdered form it is widely employed to flavour cakes (gingerbread), and it is also employed in the manufacture of ginger ale.

Ginning Process by which cotton fibres are separated from the seeds. It is performed by means of a machine known as a gin, of which there are several types, adapted for use with long or short-stapled cotton. The word is a corruption of engine.

Ginseng Root of a shrub of the ivy order (*aralia ginseng*). It is reputed by the Chinese to possess rejuvenating properties. Wild plants from Manchuria are preferred to those cultivated in Korea; Americans export

the variety called *A. quinquefolia* to China as a substitute.

Giolitti Giovanni. Italian politician. Born Oct. 27, 1842, he was educated at Turin. In 1882 he was elected to the Chamber of Deputies, and in 1889 was made Minister of Finance. In 1892 he became Premier, but in 1894 he was obliged to resign. He later became Minister of the Interior, and in 1903 Premier for the second time. He resigned in 1906, but returned as Premier 1906-09 and 1911-14. During the Great War he advocated a policy of neutrality. Giolitti was again Premier in 1920-21. In 1922 he published an autobiography. He died July 17, 1928.

Giorgione Giorgio. Venetian painter. Born at Castelfranco in 1477, he was a pupil of Giovanni Bellini, and at 27 years of age painted the altar piece in the cathedral of his native place. This was followed by a number of other works of great beauty, but only a few of the many paintings attributed to him are authentic. Three are shown in the National Gallery, London. He died in Venice in 1510.

Giotto di Bondone Italian artist. Born near Florence about 1266, he was the son of a peasant landowner. Tradition says he was found drawing his father's sheep, by Cimabue, who, recognising his genius, made him his pupil. The whole life of Giotto is similarly obscured by legend and much of his work has been lost, but it is known that he executed for S. Peter's, Rome, in 1298, a mosaic and altar piece. A series of his frescoes are preserved in the Church of S. Francis at Assisi and at Padua. He also designed the beautiful campanile at Florence called Giotto's Tower. He died Jan. 8, 1336.

Gippsland District of S.E. Victoria, Australia. It covers about 14,000 sq. m. and on its fertile soil cattle are grazed, chiefly for their milk. The district is also rich in coal and other minerals. Sugar beet is cultivated. Sale is the chief town.

Gipsy Hill District of S.E. London. It is in the borough of Lambeth and the district of Norwood, and on the S. Rly. At one time the place was frequented by gipsies.

Giraffe Ruminant hooved mammal (*giraffa camelopardalis*). It is a native of Africa, south of the Sahara. The tallest of all animals, it attains to a height of 18 or 19 ft. and is tawny coloured with brown blotches. It has a short body and long limbs and neck, which nevertheless has only the same seven neck bones as man; its ears are large and pointed, and it has skin-covered, horn-like appendages, and a tufted tail. It feeds on leaves plucked singly from branches by its long flexible tongue. Timid and swift moving, giraffes are rapidly disappearing, especially from S. Africa.

Girder In engineering, a beam of wrought iron, rolled steel or reinforced concrete supported at both ends. Designed to bear a heavy weight and resist transverse stresses, girders are used for floors and roofs of buildings, and in the construction of bridges. In the simple H girder, the longitudinal bars or flanges are united by a transverse plate or web, the flanges resisting the stresses put upon the girder. Steel girders are much used in modern business buildings, of which they form the framework.

Girgenti City of Sicily. It is 84 m. from Palermo and the capital of Girgenti province. It is chiefly famous for the remains of its temples, which are among the most notable of their kind. It occupies the site of the Greek city of Agrigentum. The city has a trade in sulphur, fruit, oil, etc., which is shipped from Porto Empedocle, 3 m. away. Pop. 20,700.

Girl Word used for a female who is not yet a woman. There is no legal age, but in Great Britain females remain girls until they are 18 or 19. Institutions for the welfare of girls include the Girls' Friendly Society at Townsend House, Greycoat Place, London, S.W., and the Girls' Life Brigade, 56 Old Bailey, London, E.C.4. Both have branches all over the country. The hours of labour of girls are limited in Great Britain and other countries by law.

Girl Guides Organisation for training girls, the counterpart of the Boy Scouts. It was started by Lord Baden-Powell and his sister, Miss Agnes Baden-Powell, in 1910. Girls between 8 and 16 years of age may become members, those under 11 being known as Brownies. They are grouped in companies, each under a captain and lieutenant, and a company is divided into patrols. Entrants are at first tenderfoots. To become guides proper they must pass tests in a number of subjects and so obtain proficiency badges. Camps are held in the summer for the guides. The headquarters are in Buckingham Palace Road, London, S.W. 1, where a new building was opened in 1931. The world membership is about 900,000.

Gironde River estuary in France formed by the union of the rivers Dordogne and Garonne. It is about 50 m. long and is navigable. Bordeaux stands on the Garonne near the head of it. Gironde is also the name of a department famous for its wines, of which Bordeaux is the capital.

Girondins (Girondists). Name given to a political party in the French Revolution (q.v.), so called because some of its members came from the department of the Gironde. Its leader was Brissot, other leading members were Vergniaud and Condorcet. The Girondins were an offshoot of the Jacobins, but were more moderate. They were in control of affairs from March, 1792, to June, 1793, when they were overthrown by Robespierre. Many of them were arrested and executed.

Girtin Thomas. English painter. Born in London, Feb. 18, 1775. He produced a number of water colours which gave him a high place amongst artists in that medium, but he was only 27 when he died, Nov. 9, 1802. Turner, with whom he worked for a time, paid a great tribute to his powers. His work may be seen in the British Museum.

Girton College for women at Cambridge. It was founded at Hitchin in 1869, and was moved to Cambridge in 1873, the buildings being erected near the village of Girton.

Girvan Burgh, watering place and market town of Ayrshire. It is at the mouth of the River Girvan, 21 m. from Ayr and 63 m. from Glasgow. There is a harbour for the fishing industry. Pop. (1931) 5292.

The river Girvan is 35 m. long. It rises in a small lake and flows through the vale of Girvan.

Gisborne Town and port of New Zealand. It stands on Poverty Bay, on the west coast of North Island. The chief industry is the shipping of wool and mutton, for which there are good harbour facilities. The town has freezing works and associated industries. Pop. 13,700.

Gish Name of two American actresses. Lillian was born at Springfield, Ohio, in 1896 and appeared on the stage at the age of five. In 1914, with her younger sister, Dorothy, she took up film work, appearing in *The Birth of a Nation*, *Broken Blossoms*, *Wall Down East*, *The Scarlet Letter*, etc.

Dorothy was born at Dayton, Ohio, March 11, 1898, and first appeared on the stage in 1903. Her chief screen successes have been *Nell Gwynne* and *Madame Pompadour*. Together the sisters appeared in *Hearts of the World*, and *Orphans of the Storm*.

Gissing George Robert. English novelist. Born at Wakefield, Nov. 22, 1857, he was educated at Owens College, Manchester. For a time he worked as a teacher in America, Germany and London. His first novel, *Workers in the Dawn*, appeared in 1880. He died Dec. 28, 1903.

Among Gissing's novels are *The Unclassed*, 1884; *Demos*, 1886; *Thyrza*, 1887; *New Grub Street*, 1891; *Born in Exile*, 1892; and *The Old Woman*, 1893. *The Private Papers of Henry Ryecroft*, 1903, is largely autobiographical. He wrote also a monograph on Charles Dickens, 1898, and a travel book, *By the Ionian Sea*, 1901.

Givenchy Village of N. France. It lies between Béthune and La Bassée, and was the scene of fighting during the Great War, as the line held by the British ran through it.

Another Givenchy is Givency-en-Gobelle. This village, about 4 m. south of Lens, was also the scene of fighting during the Great War.

Gizeh Town of Egypt. It is on the left bank of the Nile, here crossed by a bridge, three miles from Cairo. To the west, connected by an electric railway, are the pyramids and the sphinx. In 1931 a fourth pyramid was discovered. The town has a palace built by one of the khedives. Pop. 11,000.

Glace Bay Town and seaport of Nova Scotia, Canada, situated on Cape Breton Island, 14 m. from Sydney, with which it is connected by railway. It stands on the Cape Breton coalfield and its industries include railway workshops. Fishing is carried on. Pop. 17,000.

Glacier Stream of ice. Glaciers slowly flow down mountain valleys from above the snowline, where the lower layers of the accumulated snow become, by pressure, converted into ice. The rate of movement in Alpine glaciers is about one foot per day, the centre moving faster than the sides, which are retarded by friction, but since, when the glacier reaches a certain level, the ice melts about as fast as it advances, the base, or snout, of these glaciers are usually nearly stationary. From the base a torrent emerges, opaque and milky looking. Much of now temperate Europe is marked by signs of retreating glaciers, evidence of the last Glacial or Ice Age (q.v.).

In Arctic and Antarctic regions great masses of ice break off the glaciers when they reach the sea, and thus form icebergs.

Gladiator In ancient Rome a professional swordsman fighting for public

entertainment. The practice, arising at Etruscan funerals, where perhaps, it replaced human sacrifices, reached Rome in 264 B.C., and became an official diversion in 105 A.C. Various types existed such as those who fought blindfolded; those using net and trident, or sword and buckler. There were also gladiators who fought in chariots, on horseback, or with wild beasts. Theodoric abolished gladiatorial spectacles in A.D. 500.

Gladiolus Genus of flowering plants of the Iris order. They are native mostly to the Mediterranean region and S. Africa. The first species reached English gardens in the 16th century. The handsomest are hybridised varieties, largely S. African, which were introduced during the 15th century. They grow from seed or from bulbous offsets of old corms, and yield one-sided spikes of large carmine, salmon, yellow and purple blooms.

Gladstone Viscount. English politician. Born Jan. 7, 1854, Herbert John Gladstone was the youngest son of W. E. Gladstone. He was educated at Eton and Oxford, being in 1877 appointed history lecturer at Keble College. In 1880 he was elected M.P. for Leeds. He served in several minor offices before 1894, when he became Chief Commissioner of Works. From 1899-1905, he was chief whip of the Liberal Party, then in opposition, and was Home Secretary, 1905-09. In the latter year he was appointed Governor-General of S. Africa, holding that office for five years, and was made a viscount. On his death May 6, 1930, the viscountcy became extinct. In 1928 he published *After Thirty Years*, a book dealing with his father's life.

Gladstone William Ewart. English statesman. Born in Liverpool, Dec. 29, 1809, he was the youngest son of Sir John Gladstone, Bart., M.P. He was educated at Eton and Oxford. In 1832, as a Tory, he was elected M.P. for Newark, and during his long career in the House of Commons, interrupted for a few months in 1846-47, he sat for Oxford University, 1847-65; S. Lancashire, 1865-68; Greenwich, 1868-80; and Midlothian, 1880-95. His official career began in 1834 as a Junior Lord of the Treasury; then as Under Secretary for the Colonies a year later. He left office with Sir Robert Peel, his leader, but in 1841 he returned to office, as Vice-President of the Board of Trade, and in 1843 he was made President with cabinet rank. In 1845 he resigned rather than agree to a grant of public money for Roman Catholic education, but he came back in less than a year as Secretary for War and the Colonies.

From 1852 to 1855, as one of the Peelites, Gladstone was Chancellor of the Exchequer. In 1859 he was again Chancellor, this time definitely as a Liberal. During the next six years, with Palmerston as Prime Minister, he was responsible for the great financial reforms on which his fame partly rests. On Palmerston's death, 1865, he became leader of the Liberal Party in the House of Commons, and in 1867 leader of the whole party.

In 1868 Gladstone was Prime Minister for the first time, and before he left office, in 1874, he had disestablished the Irish Church, reformed the education system and introduced other reforms. In 1875, having lost the General Election of 1874, he retired from public life, but returned in 1878 to denounce the misdeeds of the Sultan. In 1880, under his inspiration, the Liberals won the General Election and he

again became Premier. His second term of office was less successful than the first, Ireland and Egypt presenting difficult problems which were not handled too well. Having passed a large measure of electoral reform he resigned office in 1885, and after the General Election declared Home Rule for Ireland. He took office for the third time as Premier, but the defection of Bright, Hartington, Chamberlain and others led to the defeat of his proposals for Home Rule, and failing in an appeal to the country, he went out of office. For six years he led the Liberals in opposition, but the election of 1892 saw him Prime Minister for the fourth time. Again his effort to give Home Rule to Ireland failed; the ministry was divided on important issues and in March, 1894, he resigned. He kept his seat, however, until 1895. He died on May 19, 1898, at Hawarden, and was buried in Westminster Abbey.

In 1839 Gladstone married Catherine Glynn, who inherited from her brother, Sir Stephen Glynn, Hawarden Castle and estates. They had four sons and four daughters. Mrs. Gladstone died in June, 1900. The Hawarden estate was inherited by his oldest grandson, W. C. G. Gladstone, M.P., who was killed in action in April, 1915. In 1932 Gladstone's only surviving son, Henry Neville Gladstone, was created a baron.

Gladstone was a great parliamentarian, and his record as an administrator will not easily be surpassed. He was a magnificent orator, and his career was helped, too, by his boundless energy, his ability to master detail and to a lesser extent, by his imperious will. He was a profoundly religious man, devotedly attached to the Church of England. His *Life* has been written by John (Lord) Morley.

Glamis Village of Angus (Forfarshire). Scotland, 6 m. from Forfar. Near is Glamis Castle, the chief seat of the Earl of Strathmore. This is a 17th century building, but it contains fragments of a much older one. Many stories cling to it, one being that it was the residence of Macbeth. In the village there is an old sculptured cross, associated with the name of King Malcolm.

Glamorganshire County of Wales. The second largest and the most populous in the principality, with a long coast line on the Bristol Channel, its area is 900 sq. m. It is in parts mountainous, and the scenery is very beautiful. Cardiff is the county town. Other large towns are Swansea, Merthyr Tydfil, Rhondda, Port Talbot and Pontypridd, Neath, Bridgend and Cowbridge. Porthcawl, Penarth and Oystermouth are three of several watering places.

The east of the county is an important coal-mining area. In the centre is the vale of Glamorgan, a fertile area, and in the west is the district of Gower, at one time outside the county. The rivers include the Taff, Tawe, Rhymney, Rhondda and Ogwr. Glamorgan sends seven members to Parliament: the Dioceses of Llandaff, and Brecon. Pop. (1931) 1,225,700.

Gland Cell or group of cells which secrete a substance of value in the metabolism of an animal or plant. The secretion collects in the cavity of the gland and usually passes to the exterior by means of a duct. Examples are the salivary glands and sweat glands.

Glands, Ductless See ENDOCRINOLOGY.

Glanders Infectious disease, caused by a specific bacillus, in certain

animals, especially horses, mules and donkeys. It is communicable by contagion to certain other animals and to man. It produces pustular discharges in the nasal mucous membrane, and in the horse the lungs are affected. When it is cutaneous, with inflamed and ulcerated lymphatic glands, it is called farcy (q.v.).

Glanvill **Ranulf De**, English lawyer. Born at Stratford, Suffolk. A judge in 1175, he was chief justice of England, 1180-89, being a valued counsellor of Henry II. Richard I, however, deprived him of office and imprisoned him. He died, while on crusade at Acre, 1190. He wrote a valuable treatise on English law, and on this his reputation rests.

Glasgow City and seaport of Scotland, the largest in the country. It stands on the Clyde, chiefly on the north of the river, and in the county of Lanark, the suburbs extending into the county of Renfrew. It covers nearly 50 sq. m. and its population in 1931 was 1,088,117, an increase of 30,000 in ten years. It includes Partick and Govan, once distinct municipalities, great industrial areas such as St. Rollox, Camlachie, Tradeston and Springburn, and the residential districts of Kelvingrove and Millhead. Glasgow is the seat of an Anglican bishop and a Roman Catholic archbishop.

The buildings are mainly modern, the cathedral, which is sacred to S. Mungo, the city's patron saint, being an exception, parts dating from the 12th century. The municipal buildings form a magnificent pile in George Square. Near are the county buildings. The Mitchell Library and the Art Gallery are notable. Other public buildings are the Law Courts, the Exchange, the Post Office, St. Andrew's Hall and the Merchants' House. The infirmaries and hospitals are fine buildings. There is an observatory and a modern cemetery, the Necropolis. The university occupies a fine range of buildings on Gilmorehill. It was founded in 1450 and is second to none in its scientific and other equipment. There are fine bridges over the river and crossing may also be accomplished by ferries and tunnels.

There are many public parks and a botanic garden, the former including Kelvingrove, Bellahouston, Cathkin Braes and Queen's. Glasgow Green has historic associations.

The industries, apart from shipping, include the manufacture of machinery, locomotives and other forms of iron and steel ware, chemicals, tobacco and textiles. Printing, distilling and dyeing are others. Shipbuilding is important. For the shipping there are extensive docks, wharves and warehouses, controlled by the Clyde Navigation Trust. The largest vessels can enter the harbour. Glasgow obtains a good supply of water from Lochs Katrine and Arkel. There are many golf courses, football grounds and other facilities for sport and recreation.

Glasgow is famous as an art centre and a group of painters have made famous the Glasgow School.

Glasnevin District of Dublin. It is 2 m. from the city and is famous for its cemetery, in which many great Irishmen are buried. Here, too, are the botanical gardens of the Royal Irish Society.

Glass Non-crystalline, transparent or semi-transparent inorganic substance. Certain minerals occur in a glassy state, but the glass of commerce is obtained by the fusion of silica with alkalis. Glass was

known to the ancients and certainly in Egypt from remote times.

Modern glass varies in composition according to the purpose for which it is intended. Bottle glass is made from sand, soda and lime with the addition of marl, baryta or basalt; sheet and plate glass are mixtures of sand, soda and lime, whilst flint glass is composed of potash, sand and lead oxide; for toughened glass boracic acid and borates are added. Glass formed of two or three plates is used for the screens of motor cars. It is claimed that some forms of this glass will resist a rifle bullet.

The Glass Sellers' Company is a London city livery company with offices at 13 Queen Anne's Gate.

Glasswort Genus of leafless herbs (*Salicornia*) of the goose-foot order. It is a native of saline soils throughout the world. The succulent, jointed stems of the marsh samphire, *S. herbacea*, are eaten by cattle; when burnt they formerly produced barilla for soap and glass making. The allied saltwort, *Salsola kali*, or prickly glasswort, served similar ends.

Glastonbury Borough and market town of Somerset. It stands on the River Brue, 37 m. from Bath. The chief buildings are the churches of S. John and S. Benedict, a museum, the George Inn, once the abbot's guest house, and another building, once his court house. Near the town is a hill called Glastonbury Tor. A musical and dramatic festival is held in the town every year, by the Glastonbury Players. Pop. (1931) 4515.

Glastonbury's great claim to fame is its ruined abbey, once one of the largest and richest in England. The abbey is said to have been founded by Joseph of Arimathea, who planted here the thorn that bloomed on Christmas Day. Actually it was founded in 601 and was rebuilt in the 13th century, being then a Benedictine house. It was destroyed at the Reformation. The ruins belong to the Church of England and a good deal of excavation work has been done on them.

Glauber **Johann Rudolf**, German chemist. Born at Karlstadt, about 1601. His experimental work resulted in many valuable discoveries. He first prepared hydrochloric acid by treating salt with sulphuric acid and the sodium sulphate (Glauber's salt) produced during the operation he held to be a universal medicine. Nitric acid from nitre, the preparation of tartar emetic, and many metallic salts were among his discoveries. He died in 1668.

Glaucoma Disease of the eyeball. It is marked by increased tension or fluid pressure, causing the crystalline lens to assume a greenish-grey hue. The condition is partly mechanical, partly congestive, resulting from the iris's outer margin being pushed against the cornea. It occurs mostly after middle life, leading to ever-increasing loss of sight, unless remedied in time by an operation upon the iris or sclerotic. Acute attacks involve much pain.

Glebe Cultivable land belonging to a parish church or ecclesiastical benefice. Initially, no church could be consecrated until parsonage and glebe were provided. Parsons may farm their own glebes or let them on farming, building or mining leases under limiting conditions, but most glebelands are now managed by the Ecclesiastical Commissioners.

Glenalmond Valley in Perthshire, through which flows the River Almond. In the glen is Trinity College, a public school opened in 1841 and connected with the Anglican church.

Glencairn Earl of. Scottish title borne by the family of Cunningham, 1488 to 1796. Alexander Cunningham, the 1st earl, was killed in battle in 1488, the year in which James III. granted him his earldom. Alexander, the 5th earl, was a friend of Knox, and alternately a supporter and antagonist of Mary, Queen of Scots. The 9th earl, William, was, after the Restoration, appointed High Chancellor of Scotland, having led a rising in favour of Charles II. in 1653. James, the 14th earl, was the patron and friend of Burns, who wrote a *Lament* on his death. At the death of his brother, John, the 15th earl, in 1796, the title became extinct.

Glencoe Pass in Argyllshire. It is 10 m. long, lies amid the mountains and runs to the sea at Loch Leven. The scenery is beautiful and wild. Here, in 1692, the MacDonalds of Glencoe were massacred by the Campbells. The order for the extirpation of the MacDonalds was signed by William III., but the extent of his responsibility for the foul deed is a matter of controversy. Glencoe, which means the glen of weeping, is associated with Ossian.

Glencoe Village of Natal, S. Africa. It is 130 m. from Durban, on the line to Johannesburg, and is a railway junction. Near are some coal mines. The place is known because there was fighting here between the British and the Boers in Oct., 1899.

Glendalough Valley and lake in Wicklow, Irish Free State. It is noted for its ruins, among the finest in Ireland.

Glendower Owen. Welsh rebel. Born about 1319, he claimed descent from the old Welsh princes. He studied law at Westminster and in 1385 fought for Richard II. against the Scots. After the accession of Henry IV. he proclaimed Welsh independence, with himself as Prince of Wales, and for the remainder of his life was in active warfare with England. He made an alliance with France against England, but after 1405 he suffered a series of defeats. He died 1415.

Gleneagles Pleasure resort of Perthshire. It is 9 m. from Crieff, with a station on the L.M.S. Rly. The company here built a fine hotel, near which are good golf links.

Glenfinnan Glen in Inverness-shire. In it is a spot called Glenfinnan, where on Aug. 19, 1745, Charles Edward set up his standard. It is 18 m. from Fort William, at the head of Loch Shiel. A memorial marks the spot.

Glengarriff Village of Cork, Irish Free State. It stands on Glengarriff Harbour, an opening off Bantry Bay, and is noted for its beauty.

Glengarry Glen of Inverness-shire. The valley of the River Garry, it lies between Lochs Olch and Garry. It gives its name to a bonnet worn by some of the Scottish regiments.

Glenlivet Glen of Banffshire, Scotland. It is in the south of the county, and the little River Livet flows through it.

Glenmore Valley of Inverness-shire. Known as the Great Glen of Scotland, it extends across Scotland for over 60 m., from the Moray Firth, S.W. of Inverness, to Loch Kil, near Fort William. The Caledonian Canal runs through it, uniting the three lochs, Ness, Lochy and Oich. There are several other valleys of this name in Scotland, including one in Perthshire.

Glenishiel Glen or pass in the county of Ross and Cromarty. It is 26 m. long and is formed by the little River Shiel. In June, 1719, a force of Jacobites, with about 300 Spanish soldiers, marched into the glen where they were attacked and defeated by some English and Dutch troops.

Glider Name given to a kind of air vessel. It is heavier than air and has no motor, being designed to descend gradually from a height to the ground. Experiments with gliders were of considerable help in developing the aeroplane. As a sport, gliding has been taken up a good deal in Germany since the Great War and to some extent in Great Britain. Gliding clubs have been established and there is a British Gliding Association at 44a, Dove Street, London, W.1. In 1931 an Austrian expert made a flight of over 70 miles in just over three hours, a record for England.

Globe Fish Various tropical and sub-tropical genera of fish. Allied to the sun fishes, they have the power of swallowing air, thereby making themselves more or less globular. Varying in length up to 2 ft. they include the small spined, brilliantly coloured and poisonous *tetodon*, which is found in the Nile, in Brazilian and Indian rivers, and occasionally in British seas. In the large-spined sea hedgehogs, *diodon*, bristly spines stand out defensively.

Globe Flower Genus of perennial herbs (*trollius*) of the buttercup order. Native to temperate and arctic regions, the British, *T. europæus*, bears flowers formed of incurved, yellow, petal-like sepals with tiny linear petals. *T. asiaticus* is cultivated in gardens. The American spreading globe flower, *T. latus*, is not globular.

Globe Theatre London playhouse, famous for its association with Shakespeare. It stood on Bankside, Southwark, and was built in 1599. It held 1200 spectators. This theatre was burned down in 1613, but another was built on or near the site and existed until 1644. In 1668 a third Globe Theatre was erected in Newgate Street, Strand. This was pulled down in 1902.

Globularia Name of a genus of herbs and shrubs. They grow around the shores of the Mediterranean and in greenhouses in Britain. They bear small flowers gathered into flatish heads and are sometimes called ball flowers.

Globulin Group of primary proteins occurring in animals and plants. They are distinguished by insolubility in water and solubility in dilute saline solutions. They are precipitated from their solutions by excessive dilution with water or by saturation with magnesium sulphate, and are coagulated by heating.

Gloss Explanatory remark inserted between the lines or in the margin of a literary work. It refers especially to those inserted by manuscript copyists. Ancient

manuscripts abound in such annotations, which, when collected and classified, form glossaries. A glossographer writes explanatory comments on obscure texts.

Glossitis Inflammation of the tongue. It may arise from an insect bite or sting, or the entry of septic germs through a wound, and may occasion an abscess. Chronic inflammation may occur from syphilis, from the irritation caused by decayed teeth or badly fitted dentures, or from excessive smoking. It may lead to cancer.

Glossop Borough and market town of Derbyshire. It is 13 m. from Manchester and 24 m. from Sheffield, with a station on the L.M.S. Rly. The principal industries are the manufacture of cotton and paper and the associated ones of dyeing and bleaching. Glossop Hall was, until 1929, the seat of Lord Howard of Glossop, who owned much of the town. Pop. (1931) 19,510.

Gloucester City and market town of Gloucestershire, also the county town. It stands on the Severn, 114 m. from London, and is served by the G.W. and L.M.S. Rlys. It is also a river port, and a canal links it with Sharpness on the estuary of the Severn. The finest building in the city is the cathedral, which has many notable features, of which the cloisters and the stained glass may be mentioned. Other churches are S. Mary de Crypt, S. Mary de Code and S. Michael's. Secular buildings include the guildhall and the New Inn, one of the oldest in England. The industries of Gloucester are carriage building works, engineering works, flour mills and manufactures of other kinds. Its cattle market is important. There is a large public park and the city has a famous Rugby football club.

Owing to its position on the Severn, Gloucester has been, from early times, an important place. Here William I. wore his crown, and here parliaments were held. It became a bishop's seat in 1541. Pop. (1931), 52,937.

Gloucester Duke of, English title borne by several members of the royal family. Robert, an illegitimate son of Henry I., was Earl of Gloucester and the Clare family held the earldom for about 100 years before 1314, when the last earl was killed at Bannockburn.

Thomas of Woodstock, a son of Edward III., was Duke of Gloucester from 1385 to 1397. He was a leading figure during the reign of his nephew, Richard II., who had him arrested and executed in 1397. Humphrey, a son of Henry IV., was made duke in 1414. He is remembered as a benefactor to the University of Oxford. He died in 1417. The next duke was the prince who became Richard III.

There was no other Duke of Gloucester until Stuart times. Henry, son of Charles I., and William, son of Anne, were both given the title, but neither attained manhood. In 1764, William Henry, a son of Frederick, Prince of Wales, and a brother of George III., was made duke. He died in 1805 and the title became extinct when his son, William Frederick, died in 1834.

Henry, third son of King George V., became Duke of Gloucester in 1928. Born March 21, 1900, at Sandringham, he was educated at Broadstairs and then at Eton. In 1919 he entered the army, serving first with the King's Royal Rifles and later with a cavalry regiment. He is knight of the Garter and Privy Councillor.

Gloucestershire County of England. In the west of the country, it is of very irregular shape and has an area of 1213 sq. m. Notable features are the Forest of Dean, between the Wye and the Severn, and the Cotswold Hills, one of the most beautiful parts of England. The Severn, the Wye and the Avon are the chief rivers, and the Thames rises in the county. Gloucester is the county town, but Bristol is the largest city. Other towns of importance are Cheltenham, Tewkesbury, Cirencester and Stroud. It is chiefly an agricultural area and in the vale of Gloucester the soil is very fertile. Coal is mined in the Forest of Dean and sheep are pastured on the hills.

At one time Gloucestershire, as a centre of the woollen industry, was one of the richest parts of England, and there are evidences of this in its fine churches and its picturesque market towns, such as Minchinhampton and Chipping Campden. It is served by the G.W. and L.M.S. Rlys. It sends four members to Parliament and contains two bishoprics, Gloucester and Bristol. Berkeley Castle is perhaps the finest of its historic buildings. It is noted as a cricketing and hunting county. Pop. (1931), 785,700.

The Gloucester Regiment was formerly the 28th and 81st regiments of foot, battalions with records of service going back nearly 200 years. The depot is at Bristol.

Glowworm Name given to beetles of the genus *Lampyris*. Two species are found in Britain. The body is soft, and while the male has the usual shape of a beetle, the female is wingless and resembles a larva. Both the adult insect and the larva of the female possess phosphorescent organs on the underside of the abdomen, hence the name.

Gloxinia (*Sinningia speciosa*). Popular variety of *sinningia*, a genus of the order *Semeracae*. A tuberous rooted plant with abundant leaves, it bears bell-like blossoms of pink, purple, crimson or white, some blooms being delicately spotted.

Glozel Hamlet, near Vichy, France. There, in 1921, a peasant, Fradin, professed to unearth some prehistoric finds. Further excavations were made by Dr. Morlet, a local amateur archaeologist, and a good deal of material, said to be ancient, was produced. For a time controversy ran high, but official investigations, both national and international, disposed of the "finds" as spurious, the outcome of a palpable fraud.

Gluck Christoph Willibald. German composer. Born July 2, 1714, in Bavaria, he received his musical education at Prague and Milan. In Italy he produced many successful operas but, visiting London in 1745, he was not there successful, being overshadowed by Handel. Humiliated by his failure, he returned to Vienna, where he produced *Orfeo ed Euridice*, 1762, and *Alceste*, 1767, operas unlike any that had formerly been produced in the harmonious relation between words and music. Through the influence of Marie Antoinette, his former pupil, *Iphigénie en Aulide* was produced in Paris in 1774, and there Gluck lived for some years. It was followed by *Armide*, *Iphigénie en Tauride* and *Ercho et Narcisse*. He died in Vienna, Nov. 15, 1787.

Glucose Form of sugar also known as grape sugar or dextrose. It is present in many ripe fruits and in honey, and is prepared commercially by boiling the starch

of potatoes, maize, etc., with dilute sulphuric acid, afterwards removing the acid with lime and evaporating the liquid. Glucose is used by confectioners, jam manufacturers and brewers.

Glucosides Vegetable substances which are combinations of glucose with other organic compounds, especially those belonging to the aromatic series. By the action of special enzymes (ferments) or by hydrolysing with weak acids, the glucosides yield glucose among other products of decomposition. Amygdalin occurring in almonds and the leaves of the cherry laurel is decomposed by the enzyme, emulsin, into glucose, prussic acid and benzaldehyde. Other glucosides are salicin from the willow, and digitalin from the foxglove.

Glue Impure form of gelatine (*q.v.*). Made from the skins and bones of animals, the finer qualities of brown glue are prepared from the hides of oxen, and lighter coloured grades from the skins of sheep. For the weaker glues bones are used, and the skins of codfish and other fishes yield a tenacious fish glue. A liquid glue is made by treating ordinary glue with nitric or acetic acid to prevent the formation of a jelly.

Gluten Mixture of proteins, forming a tough elastic substance. It is obtained by washing and kneading wheat flour in water to remove the starch. Gluten forms from 10 to 12 per cent. of wheat, or and from it two proteins, gliadin and glutenin, may be extracted. The hard wheats are especially rich in gluten and from them are made the French *pâtes alimentaires*, macaroni, spaghetti and vermicelli.

Glutton Largest carnivorous mammal (*Gulo luscus*), of the weasel family. Found in north Europe, north Asia and North America, where it is usually called the wolverine, it is extinct in Britain, where its fossil bones occur in cave earths. Like a bear in shape, with short bushy tail, it is strong and voracious. Its shaggy brown-black fur serves for rugs and carriage aprons.

Glycerin Trihydric alcohol having the formula $C_3H_7(OH)_3$. It forms a thick colourless liquid with a sweet taste. The decomposition product of oils and fats, it is manufactured on a large scale as a by-product of candle and soap works. It is used in the pure state in medicine, also in the manufacture of explosives and for many other industrial purposes.

Glyptodon Typical genus of an extinct armadillo family of giant, long-tailed armadillos. Fossil remains of them have been found in S. American pleistocene deposits. A specimen from the Buenos Aires Panpa formation, *G. clavipes*, is now at the Natural History Museum, S. Kensington. This has a rigid, dome-shaped, tortoise-like carapace, 7 ft. by 9 ft., its total length measured over the back being 11½ ft. The carapace was covered with bony rosettes, fully 1 in. thick, which were once skin covered, and the head had futed teeth. The tail had overlapping, bony rings.

Gnat English name for various two-winged insects of a family collectively called mosquitoes (*Culicidae*). The female has a piercing and sucking proboscis. The several British species include the common house gnat, *Culex pipiens*, and the larger banded *C. annulatus*. All have aquatic larvae.

Gneiss Metamorphic rock having position as granite. Thus it contains quartz, felspar and mica as essential constituents; the minerals are arranged in alternate layers, although in some varieties the foliation is obscure. The varieties of gneiss are named after the corresponding igneous rocks, such as granite gneiss, diorite gneiss, etc.

Gnosticism Spiritual and metaphysical system, antecedent to Christianity. It sought to combine Oriental religious cults with Greek philosophy. Orthodox Christianity developed gnostic heresies and gnosticism assumed Christian forms. A mystery religion, it claimed, not intellectual knowledge, but esoteric "gnosis," attributing virtue to talismans and amulets. Characterised by theories of cosmic emanation and Zoroastrian dualism, its vigour in the 2nd century influenced much Christian literature, causing rivalries whence orthodox Catholicism emerged triumphant. By A.D. 600 gnosticism had lost its hold.

Gnu Hottentot name of the large, white-tailed antelope (*Connochaetes gnus*). It is called by the Boers the black wildebeest. It is 4 ft. high and heavy-headed, with a wide muzzle and a long mane, something like a grotesque buffalo with a pony's hind-quarters and tail. Both sexes have cylindrical horns, curving downward and then upward. Pierce and fast, it is now nearly extinct. The allied brindbill gnu or blue wildebeest, *C. taurinus*, ranges E. Africa in herds from Lake Victoria to the Orange River.

Goa District of India. A Portuguese possession, it is on the west coast, about 250 m. south of Bombay. It has a coastline of about 40 m. and covers 1470 sq. m. It is a fertile region, bounded by the presidency of Bombay, and is connected by railway with British India. It has been Portuguese since 1510. Pop. 532,000.

On the coast is Panjim, also called New Goa, the capital of Portuguese India. Near are the ruins of Old Goa. At one time it had a population of 200,000 and was the chief town of the great Portuguese empire in the East.

Goat Genus of hollow-horned ruminants (*capra*). The bucks, which emit a peculiar odour called hircine, are usually chin bearded. They lack the face glands of the sheep and those between the hind hoofs; their strongly wrinkled horns are usually straighter, but otherwise they are difficult to differentiate from some wild sheep. Domesticated in neolithic times by lake dwellers, the ancestral form came from the Mediterranean region and Persia. Some wild species are the ibex and markhor. The so-called Rocky Mountain goat is a goat antelope; the goat proper is not found in the new world.

Goats are kept for their milk and also because their hair, wool and skin have commercial value. To foster their keeping there is a British Goat Society in London.

Goathland Village of Yorkshire (N.R.). It is 8 m. from Whitby, on the L.N.E. Rly. The place has a hydro and a colony for disabled officers was founded here after the Great War. Near is Goathland Moor on which are some waterfalls. Pop. 600.

Goat's Beard Biennial herb (*Tragopogon pratense*) of the composite order, it is common in England and Wales. Its erect stem bears solitary yellow

flower heads, which close at midday after pollination; hence the colloquial name John-go-to-bed-at-noon.

Goat's Rue Tall perennial leguminous herb (*Ulex officinalis*). It is hardy, with feathery leaves and sprays of miniature pinkish-purple or white pea-like flowers. Cultivated for fodder, it is also a garden favourite and grows to a height of 5 ft. It was formerly used in medicine for promoting perspiration, and as a stimulant.

Goatsucker See NIGHTJAR.

Gob (and **Gob Fires**). Technical term for waste coal left in mines and the spontaneous fires arising in it. The latter were once a serious matter, but under modern methods little such coal is left in the mine and the fire danger is correspondingly reduced.

Gobelin **Jean**. French dyer. He was born probably in Reims and became a dyer in Paris, where he is said to have invented a vivid scarlet dye. He died in 1476 and his business was for a time carried on by his descendants.

By mere chance Gobelin's name was given to famous tapestry. In 1603 Henry IV. bought some land from the Gobelins and thereon built workshops in which tapestry was made for him, and was called Gobelin, although Gobelin had nothing to do with it. The works remained royal property until the Revolution and are now a state establishment.

Gobi Desert of Asia, in E. and S. Mongolia. It forms a plateau nearly 1000 ft. high and covers some 300,000 sq. m. Sven Hedin, Sir Ansel Stein and others have explored it. Buried towns and the fossils of mighty prehistoric creatures prove it to have once been a more habitable area than it is to-day. The Chinese name is Shamo.

Goby Name for various genera of spiny-finned fishes. Their ventral fins form a snoker-like disk for clinging to rocks. Dwelling off tropical and temperate coasts, the largest British species, the black *gobius niger*, 10 in. long, is common in rock pools. The spotted *G. minutus*, a smaller fish, abounds in the Thames estuary, making shell-protected nests in sand.

God Divine being. Every religion has its gods and goddesses and many of them were associated with a particular branch of human activity. In Christianity, and also to the Jews and Mohammedans, God is the Supreme Being, the creator of the world, omnipotent and eternal.

The development in human thought of the idea of God is the fundamental study of comparative religion. It has two general tendencies. One is towards theism—passing through polytheism to monotheism—and believes in personal moral forces being distinct from, and ruling, the universe; the other is towards pantheism and holds that impersonal forces are immanent in, and identifiable with, the universe. The popular etymology deriving God from good is erroneous, but the Christian doctrine of God, as reaffirmed at the Lambeth Conference in 1930, emphasises His universal love.

Godalming Borough of Surrey. It stands on the Wey, 35 m. from London on the S. Rly. There are some small industries; at one time it was famed for its cloth. It is a good centre for tourists, as around is much beautiful scenery. The Hog's

Back runs past the town and near it are the buildings of the Charterhouse School. Pop. (1931), 10,100.

Godetia Annual plant (*onothera*) related to the evening primrose. Varying in height from one to two feet, it includes both double and single varieties. The flowers are white, pink, crimson, crimson and white or cream. The godetia blooms freely in sunshine and is a gay and ornamental plant for the border. It is a native of California and Chile.

Godfrey Count of Bouillon. Born about 1061, the son of the Count of Boulogne, he became famous as a soldier. In 1096 he set out on crusade, leading his men across Europe to the Holy Land, where he played a distinguished part in the siege and capture of Jerusalem. He was offered the title of king, but this he refused, although he was ruler of the city until his death in July, 1100.

Godiva Lady. Wife of Leofric, Earl of Mercia. She lived in the 11th century, and legend described her as having ridden naked through Coventry's streets, a condition imposed by her husband for securing to its citizens relief from his exactions. The legend first appeared in 1235; the peeping Tom episode, in which a tailor who disobeyed her request to the householders to refrain from looking forth was afflicted with blindness, was unknown before 1678, when a commemorative procession was instituted in Coventry. This was repeated annually at the fair until 1826. It was revived in 1818 and has been held fairly regularly since then.

Godley Sir Alexander John English soldier. Born Feb. 4, 1867, and educated at Haileybury and Sandhurst, he entered the Royal Dublin Fusiliers and served in the South African War. In 1910, after experiences on the staff, he was sent to command the New Zealand defence force and was there until 1914. During the Great War he commanded a division of Australians and New Zealanders in Egypt and Gallipoli and was then in charge of an army corps on the Western Front. He was commander-in-chief of the British army on the Rhine, 1922-21. From 1921-28 he held the Southern command, and in 1929 he was made Governor of Gibraltar.

Godmanchester Borough and market town of Huntingdonshire. It stands on the Ouse, just outside Huntingdon, 59 m. from London, by the L.N.E. Rly. There is a trade in agricultural produce. Pop. (1931) 1991.

Godolphin Earl. English title borne by the family of Godolphin from 1706 to 1766. Sidney Godolphin, born in June, 1615, was a member of an old Cornish family. In 1678 he was made a peer, and in 1684 First Lord of the Treasury and he retained that position under James II. and William III. During the reign of Anne, Godolphin was Lord High Treasurer from 1702 to 1710, during which time he gave valuable support to Marlborough. He died Sept. 15, 1712.

On the death of his son, Francis, in 1766, the title became extinct. His estates passed to his daughter who married the 4th Duke of Leeds.

Godparent Sponsor for an infant at its baptism. Sponsors arose in Christendom in the 2nd century, as guarantors of character for pagan converts. The Roman Catholic and Anglican churches

require godparents or sponsors at the baptism of a child and, according to an old custom, a child is often given a name or names belonging to the godparents.

Godunov Boris Fedorovich. Tsar of Muscovy. Born about 1552, he was the most famous member of an ancient Tatar family. He became important at court, and on the death of Ivan the Terrible was appointed as guardian of his son and successor. Godunov put down all rebellion, and by 1588 was omnipotent. He had a strong and wise foreign policy, encouraged foreign trade and education, and re-colonised Siberia. On the death of Theodore, he was elected Tsar. He died on April 13, 1605.

Godwin English earl. He was one of the chief supporters of Canute, in whose reign he first came into prominence, becoming Earl of the West Saxons in 1020. He helped to secure the succession of Harthcanute in 1035, and of Edward the Confessor who had married his daughter, in 1042, and until 1051 was the most powerful man in England. In that year he quarrelled with Edward and was exiled with his sons. He returned in 1053, but died April 15 of the same year. Harold and Tostig were two of his sons.

Godwin Mary Wollstonecraft. English writer. Born April 27, 1759. In 1786 she published *Thoughts on the Education of Daughters*, which was followed by other original works and translations, including a reply to Burke's *Reflections on the French Revolution*, and a *Vindication of the Rights of Women*. In Paris, during the reign of terror, she met Gilbert Inlay, to whom she bore a daughter. On his desertion, she attempted suicide, but in 1797 married William Godwin. Their daughter, Mary, married Shelley. She died Sept. 10, 1797.

William Godwin, husband of the above, was first a minister, then a free thinker and writer. His chief books are *Inquiry Concerning Political Justice* and *The Adventures of Caleb Williams*. In 1801 he married Mrs. Clairmont and became the stepfather of Claire Clairmont, the mistress of Byron. He died in London, April 7, 1836.

Godwin-Austen Mountain in the western section of the Himalayas. Its height is 28,250 ft. It was named in 1888 after Lieut.-Col. H. H. Godwin-Austen (1834-1923), who surveyed the district.

Goeben German battle cruiser. She was built at Hamburg in 1911 and carried eight 14 in. guns besides lesser armament. On Aug. 6, 1914, the *Goeben*, with a light cruiser, the *Breslau*, steamed through the Mediterranean Sea into the Dardanelles and so to Constantinople. Their escape from the British ships off Messina was the subject of an inquiry. Probably their bold arrival helped to persuade Turkey to enter the war on the German side. Later the *Goeben* became active in Turkish waters and was still afloat, although much damaged, at the armistice, when she was taken over by the British fleet.

Goethals George Washington American soldier and engineer. Born at Brooklyn, June 29, 1858; in 1898 was chief engineer of the First Army Corps in the Spanish-American War. In 1907 he was put in charge of the construction of Panama Canal, and on its completion in 1914, became first governor of the canal zone. On the entry

of the U.S.A. into the Great War, he held various posts. He died Jan. 21, 1928.

Goethe Johann Wolfgang von. German poet. Born at Frankfurt, Aug. 28, 1749, the son of a lawyer, was educated at home and at the universities of Leipzig and Strasbourg. He began to practice law, but the greater interests of literature, art and science mastered him, and in 1775 he settled at Weimar, where he became the trusted adviser of the Duke of Saxe-Weimar. After a while he gave more time to literature and less to the public service, but he directed the court theatre and in 1792 went with the duke's army to fight the revolutionary army of France. The great love of Goethe's life was Charlotte von Stein, but there were others, among them Christiano Vulpius, whom he married in 1806, long after she had borne him a son, August. Another influence in his life was the friendship of Schiller. On March 22, 1832, he died at Weimar. His house there, like his birthplace in Frankfurt, is a public memorial. Centenary celebrations were held all over the world in 1932, in his honour.

Goethe wrote much both in prose and verse, also some beautiful lyrics and ballads. His supreme work is *Faust*, which he began when quite young, but did not finish till 1832. Of his dramas *Götz von Berlichingen*, *Iphigenia* and *Egmont* may be mentioned. *Wilhelm Meisters Lehrjahre* is his greatest novel, followed after a time by *Wilhelm Meisters Wanderjahre*. Others are *Werther* and *Hermann und Dorothea*, and his autobiography, *Aus Meinem Leben: Dichtung und Wahrheit*. Goethe also did notable work in physics and biology.

Gog and Magog Two biblical names. Magog is mentioned in Gen. x., meaning, apparently, Gog-land, perhaps Armenia. Ezekiel (xxxviii, xxxix) regards Gog of the land of Magog as Israel's enemy. Rev. xxi. describes Gog and Magog as co-ordinate worldly powers. Mediaeval chronicles describe two giants acting as palace porters in London, of whom gigantic wickerwork images, Gog and Magog, figured in mayoral processions. These were lost in the Great Fire, but Saunders' images, 14 ft. high, carved in 1708, still stand in the Guildhall, London.

The Gogmagog Hills lie to the S.W. of Cambridge. The highest point is only 222 ft. high, but the flatness of the surrounding country makes them noticeable.

Gogh Vincent Van. Dutch painter. Born in Holland in 1853, he early showed artistic genius. First influenced by Millet, then by the Impressionist School, he later became, with Cézanne and Gauguin, one of the leaders of the Post-Impressionists. A victim of sunstroke, he painted many of his best pictures in an asylum at Arles. In 1890 he died by his own hand.

Gogol Nikolai Vassilievitch. Russian novelist. Born March 31, 1809. In 1828 he went to St. Petersburg where, for a time lectured at the university and, in 1831, brought out *Evenings at a Farmhouse near Dikanka*, a popular series of tales of South Russia. A second series, *Mirgorod*, including his famous story *Taras Bulba*, followed in 1834. A comedy, *Revizor*, translated into English as *The Government Inspector*, was produced in 1836, and *Dead Souls* in 1842. Gogol died in Moscow, Feb. 21, 1852.

Goidel Old Irish name of the early branch of the continental peoples

who reached Britain before or with the culture of the bronze age. Their speech survives in Irish, Scottish, Gaelic and Manx. John Ithys introduced the name to replace Gadhel in 1882.

Goitre Swelling on the neck, due to enlarged thyroid glands. Simple goitre, or bronchocele, is endemic in certain mountain valleys throughout the world, e.g., parts of Switzerland, Derbyshire (where it is called Derbyshire neck) and Himalayas; women are more susceptible to it than men. Iodides are often successfully administered while the tumour may be removed surgically. Exophthalmic goitre or Graves's disease, is quite distinct. See also CRETINISM.

Golborne Market town and urban district of Lancashire. It is 189 m. from London by the L.M.S. Rly. Here are cotton mills, and in the neighbourhood are collieries. Pop. (1931) 7322.

Golcar Urban district of Yorkshire, W.R. It is 200 m. from London by the L.M.S. Rly., and 3 m. from Huddersfield. The manufacture of woollen goods is carried on. Pop. (1931) 9812.

Golconda Ancient city of India. It is about 7 m. from Hyderabad, and now a ruin. Near by were rich diamond fields, hence the proverbial references to the vast wealth of Golconda.

Gold One of the elementary metals. Its chemical symbol is Au, from the Latin *aurum*; its atomic weight is 197.2; its specific gravity 19.32, and its melting point 1061°C. One of the precious metals.

The increase in the use of gold was made easier by the discoveries of rich supplies first in Australia and then in South Africa. Before the Great War much gold was coined, but during the war paper money took its place and gold coins have almost ceased to circulate. This paper coinage, however, is based upon gold; consequently a large amount of gold is held by the state and other banks as security or cover for the paper money in circulation.

Gold is found nearly all over the world, but usually in such small quantities that it does not pay to work it. The main supply comes from quartz; others from dredging certain rivers, where the gold is found in sand and gravel. The amount of gold in a ton of quartz rock is quite small, but improved methods of mining have enabled mines to be worked that a few years ago would have been unprofitable. The world's output of gold remains fairly steady at about £90,000,000 a year. Of this the Transvaal mines produce about half. In 1930 the production of these mines reached the record figure of £45,558,980. Other producing countries are the United States, Canada, which is rapidly increasing its output, Russia, Mexico, Australia, Rhodesia and India.

Of the gold mined, about three quarters is used in the arts, gold being always in great demand for ornamental purposes, e.g., for rings, watches, brooches and other articles of jewellery and personal wear, whilst much is beaten out to form gold leaf. When used in the arts, it is mixed with basic metals to a varying extent. Its purity is indicated by the number of carats, pure gold being taken as 24 carats. Gold articles are stamped by the assay offices as being of so many carats.

Gold, being the accepted standard of value nearly all over the world, has a marked effect on prices, although the nature of this is a matter of debate among economists. A good

deal was said about this matter during the trade depression of 1929-31. Some argued that by making more use of the stocks of gold in the central banks, the bankers could do much to restore prosperous conditions; they could use the huge stocks of gold to create credit and so bring about a trade revival. Others argued that this would only mean the raising of prices without any corresponding benefit. Another theory is that the annual output of gold is not sufficient to finance the increasing amount of trade; in other words it does not keep pace with the output of other commodities. There seems indeed, an extraordinary ignorance, even amongst experts, of the influence of gold under the changed conditions that followed the Great War. The only certain fact is that the value of gold increases with falling prices and falls when prices rise.

The Gold Standard is in existence when a country will export gold when there is no other way of discharging its balance of debts abroad. Great Britain, by providing for the free export of gold, placed herself in this position in 1926, but abandoned it in 1931. Gold point is the point in the foreign exchanges when it pays a country to export gold.

In April, 1931, the amount of gold held by the treasuries and banks of four countries was as follows:

United States	£265,000,000
France	447,700,000
Great Britain	140,300,000
Germany	115,100,000

Since Dec., 1929, the United States had added £89,000,000 to its stock and France has added £112,000,000. The market price of gold varies very little, being usually just about £3 17s. 10d. per oz.

Gold Coast British colony in West Africa (so called because gold was found in its river beds in the 14th century or earlier), with a coastline of 331 m. on the Gulf of Guinea. Covering about 24,000 sq. m., or, with Ashanti and the so-called Northern Territories, is 80,000 sq. m. In extent (the three are under the same government, which consists of a governor assisted by a legislative and an executive council). Cocoa, gold, diamonds, mahogany, and palm oil are produced and exported. Accra, a seaport, is the capital.

The Portuguese visited the coast in the 15th century and during the 19th the district became British, partly by purchase and partly by cession.

Goldcrest See WREN.

Golden Age Hesiod's mythical period of patriarchal simplicity and innocence. It was the period when Saturn, or Cronos, reigned in Latium. The phrase is applied to the culminating age of a country's prosperity, literature, or art.

Golden Bull Term used for a charter of exceptional importance, such as was sealed with a golden seal or bull. The chief of these was that drawn up by the Emperor Charles IV. in 1356, providing a constitution for the Holy Roman Empire.

Golden Calf Molten image made by Aaron. At the people's instigation, Aaron converted the ornaments brought from Egypt into a calf for worship when Moses was receiving the Law on the sacred mount (Ex. xxxii.). Jeroboam established similar images at Dan and Bethel (1 Kings xii.).

Golden Fleece Fabled skin of a golden ram. By it the children of the King of Thebes, Phrixus and Helle, were carried off from their enemies. Helle fell into the sea, but Phrixus reached Colchis, where he sacrificed the ram. Aëtes, King of Colchis, hung up its skin in the temple of Arct, and this was the golden fleece. Later, Jason and his Argonauts brought it back with them to Thessaly.

Golden Fleece Order of the European order of knighthood, one of the oldest and most famous in the world. Founded in 1429 by Philip, Duke of Burgundy, it was dedicated to the Virgin and St. Andrew, and was kept in being by the succeeding Hapsburg and Bourbon dynasties, both in Spain and in Austria until these countries became republics. The badge contained a representation of the golden fleece.

Golden Gate Channel that leads from the Pacific Ocean into San Francisco Bay. It is about 5 m. long, and is so-called because of its beauty.

Golden Horn Opening of the Bosphorus. It separates the city of Istanbul, or Constantinople, from the suburbs of Pera and Galata; it is famed for its beauty.

Golden Number Chronological term used in determining the date of Easter and the Epact (q.v.). It represents the number of the year in the metonic or lunar cycle of 19 years; therefore the numbers range from 1 to 19. In the early calendars the number was marked in gold after each year, hence the name.

Golden Rod Genus of composite herbs (*Solidago*). The widespread *S. virgurea*, common on British waysides, bears a wandlike spike of tiny yellow flowerheads. All the other species, of which there are about 100, are American, but *S. canadensis*, with pyramidal sprays of yellow flowers, is cultivated in British gardens.

Golden Rose Emblem of wrought gold, blessed by the Pope on the fourth Sunday in Lent. It is then often presented to a church, distinguished person, or community. At first a single rose it became a thorny spray with leaves and jewelled petals, a costly piece of goldsmith's work.

Golden Rule Christ's precept. It is found in the Sermon on the Mount, "Whatsoever ye would that men should do unto you, even so do ye also unto them" (Matt. vii. 12).

Golders's Green Residential district of London. It lies to the N.W. of the city, adjoining Hampstead. Its growth took lace entirely during the 20th century.

Goldfinch Common British resident song bird (*Carduelis elegans*). Its length is about 5 in. and it has black, yellow and white wings, and bright red throat. It builds a moss-lined nest and lays two broods of 4 or 5 reddish-spotted blue and white eggs.

Goldfish Small fish allied to the carp. It was brought to England from China or Japan about 1700, and has since been universally kept in aquaria (and, as a child's plaything, in tiny bowls). The original fish was brown, the gold tints having since been produced by breeding. Under favourable

conditions it will live and breed in tanks and ponds of small size. The water must be well aerated and weeds should grow in it.

Gold Leaf Thin sheet of gold used for gilding. Each is $\frac{1}{1000}$ of an inch in thickness, and $\frac{3}{4}$ in. square. Small gold ingots are rolled out to form a strip not more than $\frac{1}{100}$ of an inch in thickness. The strip is cut into pieces an inch square, and these are placed, first, between pieces of vellum, or prepared paper, and then goldbeater's skin, and beaten until the required thickness is obtained.

Goldbeater's skin is specially prepared from a part of the large intestines of the ox.

Goldsborough Village of Yorkshire (W.R.). It is 3 m. from Knaresborough, on the L.N.E. Rly. It is noted for its hall, which is on the estate of the Earl of Harewood. This was the country home of the earl, then Viscount Lascelles, and Princess Mary from 1922 to 1929, when he became Earl of Harewood. In 1931 it was let.

Goldsmith Worker in gold and precious metals, or dealer in gold and silver plate.

The Goldsmiths' Company is one of the oldest city companies of London and has its hall in Foster Lane, E.C., where plate is assayed and hall marked.

Goldsmith Oliver Irish writer. Born Nov. 10, 1728, the son of a clergyman, he went from school to Trinity College, Dublin, but refused to take up any profession, although he dabbled in medicine. He passed some years in wanderings over Europe before (1756) settling in London. He tried several ways of getting a living, but the only one that brought any reward was that of a bookseller's hack. In 1759 he published his *Enquiry into the State of Public Learning* and his fortunes began to mend. He started a paper called *The Bee*. In 1760-61 he wrote his "Chinese Letters" in *The Public Ledger*—afterwards issued as *A Citizen of the World*; they are the imaginary reflections of a Chinese philosopher on visiting England.

In 1761 he became friendly with Johnson and was one of the original members of the Johnson circle. Johnson was pleased to approve of *The Traveller*, published in 1764, and in 1766 Goldsmith followed up this success with a much greater one, his immortal novel, *The Vicar of Wakefield*. In 1770, much miscellaneous work having filled the intervening years, appeared his best poem, *The Deserted Village*, and in 1773 his dramatic masterpiece *She Stoops to Conquer*. A less successful play was *The Good-natured Man*. Goldsmith died in his chambers in the Temple, London, April 4, 1774, and his grave is marked by a statue outside the Temple Church.

Gold Stick Official at the British court. The office is held in turn by the colonels of the regiments of household cavalry, and the duties are to attend the sovereign on state occasions. There is also a gold stick for Scotland, this being the captain general of the Royal Company of Archers.

Gold Stripe Mark worn by soldiers of the were wounded in the Great War. It was introduced in 1916, and took the form of a strip of gold lace worn on the left sleeve of the

coat. The French army has a similar decoration.

Goldwyn Samuel. American film producer and business organiser. Born in Warsaw in 1882, his parents (named Goldfish) took him in 1896 to America, where he was naturalised in 1902. He was a pioneer in urging American authors to write directly for the screen. He organised the Jesse Lasky Photoplay Company and was associated for a time with the great Metro-Goldwyn combine at Los Angeles. He was the subject of a *Life* by John Drinkwater.

Golf Popular outdoor game. It is played upon links, or open spaces, on which there are obstacles, or "bunkers," such as a sandhill or a pool of water. If these are not provided by nature they are usually made for the purpose. Each course consists of a number of stretches, usually 18, at the end of each of which is a green with a small hole in the middle of it. The aim of each player is to drive his ball into this hole in fewer strokes than his opponent. The ball is of wound elastic, coated with rubber. Each player has a number of clubs, each adapted for a particular kind of stroke: e.g., the driver, brassie, iron, mashie, putter and niblick, and variations of these. A game is generally played by two players, one against one, but the foursome, in which two players play against two, is a popular variation.

All over Great Britain there are golf courses, and the game has taken a great hold in the United States. The oldest club is the Royal and Ancient Golf Club at St. Andrews, which is accepted as the ruling authority of the game. Clubs hold competitions amongst their members, medals being given and for these there is a system of handicapping, a certain number of strokes being given or received.

There are various competitions, for women as well as men. The chief of these is the men's open championships, for amateurs and professionals. There are also amateur championships for men and women, for England, Scotland, Ireland, France and other countries. Matches are played between the universities, and between Great Britain and the United States. In these the teams are usually eight-a-side.

Goliath Philistine of Gath. A gigantic man, he challenged Saul's hosts to single combat, whereupon David slew him with a stone from his shepherd's sling (1 Sam. xvii.).

Gomersal Urban district of Yorkshire (W.R.). It is 5½ m. from Bradford, and 214 m. from London by the L.M.S. Rly. Here are textile manufactures, and there are collieries near. Pop. 3800.

Gomorrah Ancient city near the Dead Sea. Its actual site is unknown. Situated, like Sodom, in the Vale of Siddim (Gen. xiv.), it was the abode of Abram's nephew, Lot. Because of their wickedness the inhabitants were destroyed by fire and brimstone.

Goncourt De. Name of two French novelists. Edmond Louis Antoine Huot was born at Nancy, May 26, 1822, and his brother, Jules Alfred Huot, in Paris, Dec. 17, 1830. Until the death of the younger (June 20, 1870), they wrote all their works in collaboration, beginning with books on special history and on art, such as *Histoire de la Société Française pendant la Révolution*, 1854, *L'Art du XVIIIe Siècle*, 1859-75 and *La Maison d'un Artiste*. Among their novels

may be mentioned *Sœur Philomène*, *Manette Salomon* and *Madame Gervaisais*. * Alone, Edmond wrote on art and also produced several novels including *La Fille Elisa*; he edited the letters of his brother and their combined *Journal*. He died July 16, 1896, leaving money to found the Goncourt Academy.

Gondola Boat used on the canals and lagoons of Venice. It has a prow and stern high above the water, and in the middle is a cabin. It is propelled by gondoliers, who stand up for their work, and is used for conveyance of passengers all over the city. Many persons have their own gondolas. The car, or nacelle, fitted to an airship is also known as a gondola.

Gonzaga Famous Italian family. One of its members became ruler of Mantua in 1328, and his descendants were persons of importance in Italy for 300 years. Luigi Gonzaga (1568-91), a member of the Society of Jesus, was canonised as St. Aloysius. About 1705 the Emperor Joseph I. took Mantua, and annexed it to Austria, while Monteferrat, another possession of the family, was given to Savoy. The duke went into exile, and in 1708 the family became extinct.

Good Hope Cape of S. Africa. This southerly point of the continent, is about 30 m. from Capetown and is often called simply the Cape. It is about 100 ft. high.

Goodrich Village of Herefordshire. About 3 m. from Ross, it has an old and interesting church. Near are the ruins of a castle, which was built to protect England against the Welsh, probably in the 12th century.

Goodwill Connection or reputation attached to a business. It is an asset, and considerable sums are paid for the goodwill of a sound business. When a business passes at death, a price is usually put upon the goodwill for purposes of probate. Many limited companies have goodwill as an asset in the balance sheet, but prudent finance provides for its gradual extinction. In some businesses of great value goodwill has been written down to nothing, thus providing the shareholders with a hidden reserve of great value. The professional connection of a doctor, lawyer or architect has also a value for its goodwill.

Goodwin Sands Sandbank off the coast of Kent. Named after the Saxon Earl Godwin, legend says it was once an island on which he had a house. The sands are about 6 m. from the coast at Deal, and extend for about 10 m. from north to south. They have a bad reputation with seamen, as many vessels have been wrecked thereon, and are protected by four lightships.

Goodwood Seat of the dukes of Richmond and Gordon. It is 3 m. from Chichester and is chiefly celebrated for its racecourse, where races take place at the end of July each year, as they have done since 1802.

Goole Urban district, market town and river port of Yorkshire (W.R.). It stands at the junction of the Ouse and the Don, 25 m. from Hull, and is served by the L.N.E. Rly. The Aire and Calder navigation system also links it with the towns of Lancashire and Yorkshire. There are good docks for the shipping of coal and other products, and steamers go regularly from here to the ports of

Scandinavia and the Netherlands. Other industries are flour milling and engineering.

Goose Web-footed bird of the family *Anatidae*. The male is called the gander, the young, goslings. There are about 40 species, among them being the grey lag goose, the bean goose, laughing goose, brent goose, and barnacle goose. Of these, the grey lag breeds in Scotland and Ireland, but other varieties are only visitors to Great Britain.

The domesticated goose is descended from the grey lag, and has been bred for the table (particularly for Christmas fare) in the British Islands for some centuries. In former days the quills of the goose were in great demand for writing, and its down is still of value.

A flat iron used by tailors is called a goose.

Gooseberry Fruit of a shrub of the *saxifrage* order (*ribes grossularia*). It grows wild in many parts of the world, and is also cultivated for its fruit. Fruit growers have produced many varieties and some gooseberries are very large. The fruit is somewhat acid, but is eaten both raw and cooked, and makes an agreeable preserve.

The Cape gooseberry is allied to the tomato. It comes from Peru, and is cultivated in India and elsewhere.

Goose Step Popular name of a military balancing exercise. The body rests upon each leg alternately, the other leg swinging to and fro with straight knee, toe pointed outward, and shoulder squared. In ceremonial parades the goose step march averages 75 paces to the minute.

Goossens Eugene. English conductor and composer. Born in London, May 26, 1893, he was a son of Eugene Goossens, at one time conductor of the Carl Rosa Opera Company. He was educated in Liverpool and at the Royal College of Music, London, and in 1915, after four years as a member of the orchestra at the Queen's Hall, London, became associated with the Beecham Opera Co. He founded an orchestra of his own and gave concerts of his own works in London and other centres.

Gopher Various small N. American rodents. They include ground squirrels allied to the Old World susliks, prairie dogs, and pocket gophers or pouched rats. The name is also applied to a N. American land tortoise (*testudo polyphemus*), which is destructive to potato crops, but its flesh is esteemed.

Gopher Wood Untranslated and unidentified Hebrew name of the timber of which Noah built the ark (Gen. vi.). The word denotes a resin yielding tree; of those suggested, cedar, pine, and cypress, the last is likeliest to be the gopher. The name applies also to the N. American leguminous yellow wood tree, cultivated for the shade it gives.

Gorbals District of Glasgow, once a separate burgh. It is on the Clyde, and on the L.M.S. Rly. The industries are those of Glasgow, with which it was incorporated in 1846.

Gordian Knot In Greek legend, a knot tied in the fastening of his ox cart by Gordius, a Phrygian, who founded Gordium. An oracle declared that he who loosened the knot would master Asia; Alexander the Great cut the knot with his sword. The phrase "cutting the gordian knot" therefore denotes bold solutions of knotty points.

Gordon Scottish family. Its founder is said to have been a Norman who settled at Gordon in Berwickshire. Sir Adam Gordon fought for Robert Bruce, and was rewarded with lands in Aberdeenshire, where the family became very powerful and which still remains the centre of its influence. In 1445 one of the Gordons was made Earl of Huntly, and in 1599 the 6th earl was made a marquess. George, the 4th marquess, was made Duke of Gordon in 1684, and there was a Duke of Gordon until the 5th duke died in 1836. Gordon Castle, near Fochabers, and his estates passed to the Duke of Richmond, who in 1876 was made also Duke of Gordon. Another branch of the Gordon family is represented by the Marquess of Aberdeen.

The Gordon Highlanders is one of the most famous regiments of the British Army. It consists of the old 75th and 92nd regiments of the line. The former was raised in 1788 among the Gordons, and the latter in 1794 by the 4th Duke of Gordon and his beautiful wife, Jane Maxwell. The regimental depot is at Aberdeen.

Gordon Charles George. British soldier, born at Woolwich, Jan. 28, 1833. He saw service in the Crimean War in 1855, and in China in 1860 and 1863-64, in command of Chinese troops, successfully crushed the Taiping Rebellion, thereby gaining the nickname of "Chinese" Gordon. At the request of the Khedive, he was, in 1874, sent to organise the Egyptian Sudan, of which from 1877 to 1880 he was governor. Sent to the Sudan again in 1884 to organise the withdrawal of troops before the Mahdi's advance, he was besieged in Khartoum. After an heroic defence of nearly 12 months, the city was captured, Gordon being slain, Jan. 26, 1885.

The Gordon Boys' Home, near Brookwood, Surrey, was erected in memory of General Gordon. It accommodates 250 homeless and destitute boys, who are trained for civil life and the services. There are homes of a similar kind in other places.

Gordon Riots Rising that took place in London, June, 1780. The Roman Catholics in Great Britain lived under serious disabilities, some of which were removed in England in 1778, though it was found impossible to do the same in Scotland, public opinion being too strong. In 1779, to oppose this removal, a Protestant Association was formed, and Lord George Gordon, a younger son of the 3rd Duke of Gordon, became its leader. On June 2, 1780, he marched with a petition from St. George's Fields to Westminster at the head of 60,000 persons. There was a good deal of disorder, and some Roman Catholic places of worship were damaged. There was further rioting on the 4th, when the Bank of England was attacked and the prisons forced. The ministers, alarmed at the strength of the movement, feared to act, but George III. ordered the military to put down the rioters by force. This was quickly done. The riots are described in Dickens' *Barnaby Rudge*.

Lord George Gordon was tried and acquitted as being insane, but 21 others were executed. Later he was concerned in other exploits, and died in Newgate, Nov. 1, 1793.

Gore Charles. English prelate and theologian. Born Jan. 20, 1853, he was made Bishop of Worcester in 1902. He was largely responsible for creating the new Diocese of Birmingham, and was bishop there from 1905 to 1911, when he became Bishop of Oxford, which post he resigned in 1919. He

was one of the authors of *Luz Mundi*, and has written a number of theological works, being known also as a worker for social reform. He died Jan. 17, 1932.

Gorgons In Greek mythology, three-winged female monsters. According to Hesiod they were named, Stheno, Euryale, and Medusa; they had snakes for hair, and turned all who looked upon them to stone. Medusa, who alone was mortal, was slain by Perseus, watching her mirrored in his shield, so that she need not look upon her. The Gorgoneion, or Gorgon's head, is a favourite door ornament.

Gorgonzola Town of Italy. It is about 12 m. N.E. of Milan, and is famous for the cheese bearing its name.

Gorhambury Estate in Hertfordshire. Once the property of Lord Bacon, it is 2 m. from S. Albans. The present house was built late in the 18th century; in the park are the ruins of one in which Bacon lived. In 1626 it passed out of the possession of the Bacons. In the 19th century it became the seat of the Earl of Verulam, but he sold it in 1931.

Gorilla Largest of the man-like or anthropoid apes. It is a native of Equatorial Africa. Allied to the chimpanzee, it differs in having small ears, an elongated head, nasal grooves, arms reaching to the knee, small thumbs, and beetling brow ridges. Its coarse hair is generally blackish in colour, with a chestnut head. The males are as much as 61 ft. the females 4½ ft. in height. Unable to walk erect, they support themselves on the fore knuckles. They are practically untamable, and seldom live long in captivity. In 1930 a sanctuary for gorillas was made in Uganda.

Goring Village of Oxfordshire. It stands on the Thames, 9 m. from Reading, opposite Stratley in Berkshire, on the G.W. Rly. It is much visited for boating, being one of the beauty spots of the Thames.

Goring Gap is the depression in the chalk hills through which the Thames flows.

Another Goring is the seaside resort in Sussex, now part of the borough of Worthing.

Gorizia City of Italy, much visited by tourists. It stands on the Isonzo, 23 m. from Trieste. The old town retains its walls, outside which a new town has been built. There are some manufactures and a trade in agricultural produce.

Gorky Maxim. Russian author. Born at Nijni Novgorod, Mar. 14, 1868, and christened Alexei Maximovitch Peshkov, at the age of nine he was apprenticed to a shoemaker. In 1884, failing to enter Kasan University, he took up a wandering life, the experiences of which served as useful material for his pen. In 1892 he published *Makar Chudra*, and in 1893 *Chelkash*, his first success. This was followed by many other works, including *Foma Gordyev*, *Konovodor*, and a drama, called in English, *At the Lowest Depths*. Dealing in arresting fashion with the sordid side of life, Gorky is one of the greatest and most realistic of the Russian writers. During the Great War he served with the Red Cross service after which he joined the Bolsheviks. In 1924 he published an autobiography, *Fragments from My Diary*.

Gorleston Watling place of Suffolk. It stands at the mouth of the Yare, 122 m. from London, on the L.N.E. Rly. The sands are very good and there are

gold links. Gorleston is included in the Borough of Great Yarmouth.

Gorse Alternative name for furze (*q.v.*), a prickly evergreen flowering shrub.

Gorsedd Name used in Wales and Cornwall for a national assembly. At these, bards contend for prizes, and they are almost identical with the elstoddfods. One was held near Penzance in 1931, this being a revival of a ceremony a thousand years old.

Gorst Sir John Eldon. English politician. Born at Preston, May 24, 1835, he was educated there and at Cambridge. In 1866 he entered Parliament as Conservative M.P. for Cambridge town; from 1875-92 he represented Chatham and from 1892-1906 his own university. In 1885-86 he was Solicitor-General; in 1886-91 Under-Secretary for India, and in 1891-92 Financial Secretary to the Treasury. He was Minister for Education, 1895-1902. He died April 4, 1916. His son, Sir John Eldon Gorst, was British Consul-General in Egypt 1907-11.

Goschen Viscount. English title borne by the family of Goschen. George Joachim Goschen was born in London, Aug. 10, 1831, the son of a banker who had settled in England. In 1863 he was elected M.P. for the city of London, in 1865 Vice-President of the Board of Trade in the Liberal ministry, and in 1866 he became Chancellor of the Duchy of Lancaster and a Cabinet minister. Between 1868-74 he served under Gladstone, first as President of the Poor Law Board, and then First Lord of the Admiralty, and in 1880 he went to Turkey as ambassador.

Never an advanced Liberal, Goschen opposed Home Rule, and as a Unionist succeeded Lord Randolph Churchill, 1886, as Chancellor of the Exchequer, when he carried through the conversion scheme of 2½ per cent. bonds. He retained office until 1892 and from 1900 to 1905 was First Lord of the Admiralty. In 1900 he was made a viscount and left the House of Commons where he had sat with slight intervals, for a succession of constituencies since 1863. He died Feb. 7, 1907.

Gosforth Urban district of Northumberland. It is 3 m. from Newcastle-on-Tyne, on the L.N.E. Rly. In Gosforth Park race meetings are held. Pop. (1931) 18,042.

Another Gosforth is a village in Cumberland, 12 m. from Whitehaven.

Goshawk Bird of prey (*Astur*), of the falcon family. The European goshawk, *A. palumbarius*, is the largest, short-winged hawk used in falconry, the female being flown at rabbits, and the male which is smaller, at partridges. Once common, it rarely comes nowadays to Britain.

Goshen Fertile region in ancient Egypt. Allotted to the patriarch Joseph and his kinsmen, the Hebrews occupied it for the several centuries of their sojourn in Egypt. It lay east of the Nile.

Gospel Oak London street. It runs between Haverstock Hill and Rochford Street, and is so named because under an oak tree, between the parishes of Hampstead and S. Pancras, the gospel was read when the bounds were beaten. The name was given to the district around.

Gospel Word meaning good tidings. It is used especially for the first four books of the New Testament that are known collectively as the Gospels. Together

they give practically all the known facts about the life and teaching of Jesus Christ. The first three, written by Matthew, Mark and Luke, are called, from their similar structure, the synoptic gospels; the fourth, ascribed to John, emphasises certain other aspects. The synoptists are interdependent because they used common sources. Mark, the earliest, utilised Peter's personal knowledge; Matthew probably penned his own memoranda, which may be the conjectural source, sometimes called Q., whence the first and third evangelists derived the additional matter engrafted upon Mark. Of Mark's 661 verses all but 30 are in Matthew or Luke or both; Matthew and Luke collectively contain 200 more.

Wycliffe's followers were called **gospellers** and later the term **hot gospellers** was given to fanatical preachers.

Gosport Seaport and urban district of Hampshire. It is 86 m. from London, on the S. Rly, and stands on the west side of Portsmouth Harbour. A ferry and a floating bridge connect it with Portsmouth. The Royal Clarence Victualling yard and barracks are here. Near is the Haslar Hospital. The urban district includes Alverstoke and Stokes Bay. Pop. (1931) 37,928.

Goss Name of a make of ivory porcelain invented by William Henry Goss. Produced first at his Stoke pottery in 1858. Its best known form is armorial china in quaint shapes, bearing the arms of towns, colleges and other places of interest. Its Parian busts and large, jewelled, Savres-like vases are also famed.

Goss Sir John. English organist and composer. Born at Fareham, Hants., Dec. 27, 1800, in 1811 he became a chorister of the Chapel Royal, London. He was made organist of St. Luke's, Chelsea, 1824, and in 1838 succeeded his master, Attwood, as organist of St. Paul's, London, being knighted on his resignation in 1872. He died May 10, 1880. Goss was the composer of some fine anthems and other church music.

Gosse Sir Edmund William. English writer. The only son of Philip Henry Gosse, the naturalist, he was born in London, Sept. 21, 1849. He was educated privately under the eyes of his father, and acquired a remarkable fund of knowledge. In 1867 he became an assistant in the British Museum, in 1875 translator of the Board of Trade, and in 1904 librarian to the House of Lords. In 1914 he retired. He was knighted in 1925 and died May 16, 1928, leaving a son, Philip, also a writer.

Gosse found time for much reading and writing as well as for association with other scholars, and was one of the leading literary men of his day. He wrote on English and foreign literature, his writings being marked by a charm of style that added to their value. As a poet he wrote *Madrigals, Songs and Sonnets* and *On Viol and Flute*, and his collected poems appeared in 1911. Criticism and biography are represented by *Gossip in a Library*, *Critical Kit-Kabs*, *Portraits and Studies*, and lives of Donne, Gray, Swinburne, Putmore and others. In 1913 he issued five volumes of *Collected Essays* and in 1919 *Diversions of a Man of Letters*. He also wrote a drama, *King Erick*, and a novel, *The Dream of Narcisse*; but to many his greatest, certainly his most intimate, book is *Father and Son*, in which, with remarkable restraint and power, he tells the story of his own childhood.

Gosse also wrote a good deal on French and Scandinavian literature.

Goteborg City and seaport of Sweden, formerly called Gothenburg. It stands near the mouth of the river Göta, on the S.W. coast of the country, and is its largest seaport. It is 285 m. from Stockholm, and is an important railway centre. Canals flow through the streets. The cathedral was rebuilt early in the 19th century. There is a university.

Göteborg has a fine harbour, and does a very large trade in timber and other products. It has also some manufactures, including shipbuilding, and is a fishing centre. It has a broadcasting station (322 M., 10 kW.). It was founded by Gustavus Adolphus in 1619. Pop. 233,300.

The **Gothenburg System** is one for the control of the liquor traffic. It was started in the city in 1871, and has been copied by other places. Under it, the liquor is sold in houses which are managed by a company under the control of the municipality. This can only make a small profit on its capital, and those in charge of the houses have no interest in promoting the sales of drink. The system is practically the same as that of the Public House Trust in Great Britain.

The **Göta Canal** is a ship canal that goes from Göteborg to the Baltic at Mem. It is 210 m. long, but for much of its course uses the river Göta and the Lakes Wener and Welter.

Gotha Town of Thuringia, Germany. It is 15 m. from Erfurt, and before 1918 was one of the capitals of the State of Saxo-Coburg-Gotha. The town has an observatory. Gotha is celebrated as a publishing centre, especially for maps, and the *Almanach de Gotha* was long published here. There are some manufactures. Pop. 45,800.

The **Gotha** is the name of a German aeroplane. It is a small, swift biplane, many of which were built and used during the Great War for raids on England.

Gotham Village of Nottinghamshire. It is 6 m. from Nottingham. Its main interest is its connection with the stories of the wise men of Gotham. These are said to have performed the most foolish actions, such as building a hedge round a cuckoo to imprison the bird. The collection of 20 stories about them is called *Merry Tales of the Mad Men of Gotham*, and their exploits are mentioned in books and plays of the 15th and 16th centuries.

Gothic Term denoting association with the Goths (q.v.). It indicates successively their unpolished manners and art; their language, which was once widespread, is now known mostly from Uphilas's 4th century Bible translation, in which he uses an alphabet of Greek, Latin and runic characters; and the pointed, black-faced letter used in the earliest printed books.

GOTHIC ARCHITECTURE. Its most popular use is for the form of architecture called Gothic, although this has no connection with the Goths. It arose in France about 1150, and was much used for cathedrals and churches in that country. Its distinguishing feature is a pointed arch, which has made possible great beauty of design. It was soon brought to England where it flourished until about 1550, in periods known as Early English, Decorated and Perpendicular. There was a revival of Gothic architecture in the 19th century, but it is less suitable for secular than for ecclesiastical.



GOTHIC ARCHITECTURE.—The airman looks down with a new appreciation on the pure Gothic lines of Salisbury Cathedral, whose graceful spire is the highest in England. [*Aerofilms*]

astical buildings, and at that time most new buildings were secular.

By common consent the Gothic Cathedral is one of the greatest products of the human mind. England and France contain many, Chartres, Canterbury and Salisbury for example. Westminster Abbey, London, the Sainte Chapelle in Paris and King's College, Cambridge, are other examples of its unsurpassed beauty.

Goths Name of a Teutonic people. They probably came from the N. of Europe, where Gothland perpetuates their name; they were, anyhow, dwelling on the shores of the Baltic in the 1st century. In the 3rd century they were in the S.E. of Europe, and were fighting the Romans. Soon they were divided into two branches, the eastern being the Ostrogoths and those in the western, the Visigoths. Owing to the preaching of Ulphilas they became Christians.

For a time the Goths lived in Dacia at peace with the Romans, but about 400, having in Alaric a warlike and ambitious leader, the Visigoths began to move. They marched westwards, reached Italy, and in 410 captured and plundered Rome. In a short time, however, they left Italy and established a Gothic kingdom in France and Spain, its capital being Toulouse and its first king Theodoric. In Spain they conquered the Vandals and occupied a dominant position until their last king Roderic, was killed in battle with the Moors in 711. In France they had been overthrown by the Franks under Clovis early in the 6th century. Such was the end of the Visigoths.

After the Visigoths had moved westward, the Ostrogoths were conquered by the Huns, but this subjection was only of brief duration. About 520 they, too, marched into Italy, where they appeared as the emissaries of the Empire at Byzantium. They established themselves there under their leader, Theodoric, who made Ravenna his capital, and, although professing allegiance to the emperor, ruled as an independent sovereign. Soon after his death, in 526, Justinian sent Belisarius against the Ostrogoths. A long struggle took place, its end coming when Narses, the successor of Belisarius, destroyed the power of the Ostrogoths, who, like their fellows, disappeared from history.

Göttingen Town of Germany. It stands on the Leine, 67 m. from Hanover, and has many objects of interest. In the old town the chief buildings are the Rathaus and the Church of St. John, while in the market place is the goose girl fountain. The industries include the manufacture of chemicals and scientific instruments; another is publishing. The university, founded by George II. in 1734, has a fine range of buildings, including a library, laboratories, museums and an observatory. Pop. 37,000.

Gottland Island in the Baltic Sea, also called Gothland. It belongs to Sweden, being about 60 m. from the S.E. coast of that country. The largest Baltic island, it is 76 m. long and covers 1220 sq. m. Visby is the capital, and there are some smaller towns. The soil is fertile and agriculture flourishes. Railways serve the island. In the Middle Ages, Gothland belonged to the Hanseatic League, being annexed by Sweden in 1645. Pop. 57,000.

Another Gottland is one of the three provinces into which Sweden was formerly divided. It included the S. part of the country.

Gouda Town of the Netherlands. It stands where the River Yssel joins the Gouwe, 12 m. from Rotterdam. Canals flow through the town, which is famous for its cheese. Pop. 28,000.

Gough Viscount. Irish soldier. Born Nov. 3, 1779, Hugh Gough entered the British Army, seeing service during the French wars, notably in the Peninsular War. Sent to India in 1837, he was given command in China, 1841-42. In 1843 he was made Commander-in-Chief in India, in which capacity he successfully fought the Mahrattas in 1843 and the Sikhs in 1845 and 1848. He was then superseded by Sir Charles Napier, and retired. In 1842 he was made a baronet, in 1846 a baron and in 1849 a viscount. He died March 2, 1869. The title is still held by his descendant.

Gough Sir Hubert de la Poer. British soldier. Born Aug. 12, 1870, he was educated at Eton and Sandhurst, joining the 16th Lancers in 1889. He served in the Tirah Expedition, 1897-98, and the S. African War, 1899-1902. In Ireland in 1914, being then in charge of a Lancer regiment, he resigned his commission rather than fight against Ulster. However, he commanded the 3rd Cavalry Brigade in France in 1914, and was soon appointed to a division and then to an army corps. In July, 1916, he was selected to command the 5th army. His conduct of the operations at the third Battle of Ypres in 1917 was severely criticised, and, when his troops fell back before the Germans in March, 1918, he was recalled. In 1919 he was appointed chief of the Allied Mission to the Baltic States, and he retired from the army in 1922. He received his knighthood in 1916. In 1931 Gough wrote his own account of the events of 1918.

Goulburn City of New South Wales. It stands on the river Wollondilly in an agricultural region, and is connected by rly. with Sydney, which is about 115 m. distant, and is a railway junction. Its industries include brewing, tanning and boot-making. There are two cathedrals. Pop. 11,940.

There is a river Goulburn in Victoria. This is a tributary of the Murray, and is 345 m. long.

Gould Sir Francis Carruthers. English caricaturist. Born at Barnstaple, Dec. 2, 1844, he was for some 20 years a member of the London Stock Exchange. In 1879 he first illustrated the Christmas number of *Truth*, and in 1887 he contributed cartoons to *The Pall Mall Gazette*. He later became assistant editor and cartoonist of *The Westminster Gazette*, for which he did some of his best work. His publications include: *Who Killed Cock Robin?* 1897; *Froissart's Modern Chronicles*, 1902-03; and *Picture Politics*, which were periodical collections of his *Westminster* cartoons. He was knighted in 1906, and died Jan. 1, 1925. Gould was the most popular caricaturist of his day. His pictures were clever, and without any trace of malice.

Gould Jay. American capitalist. Born at Roxbury, New York, May 27, 1836, he left his father's farm in 1852 to work in an ironmongery store, learning surveying in his spare time. After a short period in the timber trade, he took advantage of the railway panic in 1857 to buy railroad shares, becoming president and manager of the Rut-

land and Washington line. He became a broker in New York in 1859. Acquiring interests in railway lines he obtained control of several, and so amassed a great fortune. In 1881 he formed the Western Union Telegraph system. He died Dec. 2, 1892, his son, George, Jay Gould (1864-1923), succeeding to his railway and other interests.

Gounod Charles François. French composer. Born in Paris, June 17, 1818, he was admitted to the Conservatoire in 1836, and in 1839 won the Grand Prix de Rome. His first opera, *Sappho*, was produced in 1851, and a year later *Clyssée* was played. In 1858 his operatic version of Molière's *Le Médecin Malgré Lui* was performed at the Theatre Lyrique, and at this theatre his masterpiece, *Faust*, based on Goethe's play, was produced on March 19, 1859. It was followed by numerous others, including *Romeo and Juliet*, 1867. He also composed beautiful church music, masses and oratorios. He died Oct. 18, 1893.

Gouraud Henri Joseph Eugène. French soldier. Born in Paris, Nov. 17, 1867, he entered the army in 1890 and saw service in the Sudan and Morocco. In May, 1914, having until then been at the head of a colonial army corps, he was given command of the French forces in Gallipoli, where he was severely wounded, losing his right arm. In Dec. 1915, and again, 1917-19, he commanded the 4th Army. In 1919 he was appointed High Commissioner in Syria and Commander-in-Chief in the Levant; in 1922 he became a member of the Supreme Council of War, and in 1924 was appointed Military Governor of Paris.

Gourd Succulent fruit of various trailing herbs (*Cucurbitaceae*) of the pumpkin order. Mostly of Asian or Mexican origin, they were cultivated in antiquity, and are mentioned in the Bible. The most valuable is the S. European globular yellow gourd derived from the genus *Cucurbita maxima*, which sometimes reaches 240 lbs. in weight. Other edible forms are the pumpkin and the marrow. Various genera include the snake gourds, bitter gourds or colocynthis, water melons, musk melons and calabashes.

Gourock Burgh and watering place of Renfrewshire. It is 3 m. from Greenock on the S. side of the Firth of Clyde, on the L.M.S. Rly. There is some shipping, and it is a yachting centre. The Gamble Institute is the chief building. Pop. (1931) 8844.

Gout Constitutional disorder. It is manifested by acute inflammation of the smaller joints, especially of the great toe, and is characterised by increase of uric acid in the blood, and deposition of sodium urates in the joints. It is dominated by a specific but unknown cause, called the gouty diathesis or predisposition, and is affected by heredity, inadequate exercise and over-indulgence in rich foods and alcohol. It only attacks adults, is commoner in men than in women, and may be acute, chronic or irregular.

Treatment. In an acute attack a lead and opium fomentation should be applied to the affected joint, which should then be wrapped in cotton wool and kept at rest in an elevated position. Three grains of calomel followed by a saline aperient should be given, and a milk diet adopted, with frequent draughts of alkaline mineral waters. Wine of colchicum will ease the pain during an attack. In

Chronic Gout attention should be paid to the diet and general hygiene, and alcohol should be avoided.

Govan District of Glasgow. It stands on the S. side of the Clyde, opposite the city proper. Its industries are ship-building and engineering. There is also some shipping. Elder Park is an open space. Until 1912, when it was included in Glasgow, Govan was a burgh with its own council and a population of about 90,000.

Government System or method of governing; also the persons who form the governing body of a country. Governments were classified by Aristotle according to whether they were directed by the one, the few or the many, there being a good and a bad form of each. We may call these monarchy or tyranny, autocracy or oligarchy, and democracy; there were examples of all in the ancient world, though not perhaps many of democracy. In addition, there were governments, the Jewish, for instance, in which the priests played a large part, these being called theocracies. Centuries earlier, as scholars are proving, early man had his forms of government, which were neither so primitive nor so uniform as was at one time supposed.

The Greeks experimented with democracy, but for some centuries most of the world's governments were autocracies or oligarchies, the people having little or no voice therein. Under the influence of the Church, the Middle Ages discovered the idea of representative government, and in developing this idea England took the lead. In the course of time representative government became the rule throughout the civilised world, but it was not yet democracy, for the representation was that of only a small class in the community. Government rested, however, as it must always do among intelligent people, on the consent of the governed, though that consent was passive rather than active. The next step was to make those who controlled affairs responsible to the representatives. Here again England took the lead.

The great era of democracy proper began with Rousseau and the ideas of the French Revolution. Gradually it gained ground, and it may be said to have reached its apogee when, in the 20th century, women were given the vote in many countries. This made these governments for the first time real democracies, as all adults had a part therein. Government by the people, of the people, for the people, was realised. But democracy has not fulfilled expectations. It may be that the modern state is too vast, that the individual, one only among millions, feels that really he is quite unimportant. Democracy in ancient Athens and democracy in modern America may have a theoretical resemblance to each other, but in practice they are poles apart. Rousseau's idea of the general will, really a version of Aristotle's idea of the state, is too philosophical for popular understanding.

After the Great War, two forms of government arose, both antagonistic to democracy, as understood by the thinkers of the 19th century. The one is the government called Soviet, imposed upon Russia, and the other Fascism (*q.v.*) or the corporative state of Mussolini.

As a term for the men responsible for the affairs of the country, the government means the politicians who occupy the offices of

state. These are united by some bond, usually a similarity of political opinions, and at their head is a Premier, or Prime Minister, called in some countries the President of the Council. The government may be called after the country, and we hear of the French or Italian Governments, meaning the men in charge, for the time being, of the affairs of that country, or it may be known as a Liberal or Socialist Government, according to the opinions of the men who comprise it, or it may be known by the name of its leader, as the Baldwin or the Briand Government. A change of government comes about in various ways, but is usually due to a loss of confidence.

Governor Official who governs a colony or dependency in the name of the king or other head of a state. In the British Empire, the governors of the self-governing dominions, Australia, Canada, etc., are called Governors-General. They represent the king, and like him keep quite outside party politics. Other colonies and dependencies, such as Ceylon and Fiji, have governors, and in some, Nigeria for example, there are lieutenant-governors, who under a governor look after a part of a colony. The governor also acts usually as Commander-in-Chief. The six states of the Australian Commonwealth have each a governor, but the provinces of the Dominion of Canada have lieutenant-governors appointed by the authorities there.

France and other countries with colonial possessions send out governors. In the United States each state has a governor, who is elected for two or four years, and paid a salary.

Governor Appliance on an engine for maintaining a uniform working speed under varying resistance. The ball governor introduced by James Watt is the usual type on stationary steam engines, and consists of two balls so attached to a vertical shaft rotated by the engine as to fly outward by their centrifugal force. The outward movement of the balls opens the throttle valve, thus reducing the amount of steam pressure.

Gowbarrow Hill or fell near Ullswater in the Lake District. It is on the N. side of the lake and on it is Gowbarrow Park, which, in 1906, was bought by the National Trust. The fell is 1580 ft. high.

Gower District of Glamorganshire. It forms a distinct part of the county, being almost surrounded by the Bristol Channel. It is 15 m. long and about 6 broad, and has Mumbles Head at one end and Worms Head at the other. Swansea and Oystermouth are the chief towns. Gower, or Gwyr, is famous for its romantic scenery and its castles. These were built by the Normans, who conquered the district in the 12th century. For long it had its own earl and sheriff, and was English rather than Welsh. In 1535 it was made part of Glamorganshire.

Gower John. English poet. Apart from the allusions to his sober and moral character made by his friend, Chaucer, little is known of his life. He was born about 1326, dwelt mostly in Kent, went blind shortly before his death in 1408, and was buried in S. Saviour's, Southwark. His three works are *Speculum Mediantis*, in French; *Vox Clamantis*, in Latin, which

tells of Wat Tyler's rebellion; and *Confessio Amantis*, in English, a collection of tales.

Gowrie Earl of. Scottish title borne from 1581 to 1600, by the family of Ruthven. The 1st earl, William, 4th Lord Ruthven, was executed for treason in 1581, being succeeded by his son, William, who died in 1588. His brother John, 3rd and last Earl of Gowrie, was concerned in the mysterious Gowrie Conspiracy. This occurred in Gowrie House, Perth, Aug. 5, 1600. According to James VI., he was enticed there by Alexander Ruthven, brother to the earl, and by him led to a secluded wing, his life being then threatened. The king's followers arriving, Alexander was killed, and so was the Earl of Gowrie, who now appeared.

Goya Y Lucientes *Francisco José de* Spanish painter. Born of peasant stock in a village of Aragon in 1746, he went to Saragossa to study art. His lawlessness made a flight to Madrid necessary, and thence he went to Italy. Returning to Madrid in 1775, he designed many tapestries for the royal tapestry factory at Santa Barbara, and was commissioned by the king to paint frescoes. He became court painter, and painted portraits of four of the Spanish sovereigns, as well as numerous members of the court. It is in his portraits that Goya's genius is best revealed. He also produced remarkably fine etchings. He died at Bordeaux, April 16, 1828.

Gozo Island in the Mediterranean Sea. Belonging to Great Britain, it is 8 m. long and covers 26 sq. m. It is 4 m. from Malta, from which it is governed. The chief towns are Victoria and Fort Chambray. Pop. 20,000.

Gracchus Name of three famous Romans. **Tiberius Sempronius Gracchus**, Governor of a province of Roman Spain, and twice consul in the 2nd century B.C., married Cornelia, daughter of Scipio Africanus. They had two sons, and Cornelia's devotion to them, together with her high character, have made her one of the most renowned of Roman matrons. The elder son, named like his father, having been elected tribune in 133 B.C., tried to secure some part of the public lands for the poor. His proposals led to serious trouble, and during some fighting he was killed. In 123 his younger brother, **Gaius Sempronius Gracchus**, was elected tribune and took up the same cause, only to meet with the same fate as his brother. His death took place in 121 B.C.

Grace Favour of one kind or another. In this sense a grace is the opposite of a right. Days of grace are days, usually three, allowed for the payment of bills of exchange beyond the specified time. Permission to take a degree at the older universities is called a grace. An archbishop and a duke are addressed as your grace.

Another kind of grace is the thanksgiving said before and after meals; it is said in schools and college halls, and sometimes at public dinners. Many forms of grace are in Latin, this being the case at Oxford and Cambridge and at the older public schools. Popular short graces are *Benedictus benedictus* (May the Blessed bless), and *Benedictio benedictural* (May the blessed be blessed).

In theology, grace is the term used for the favour shown by God to mankind. Its essence is that it is undeserved. Man has sinned,

but salvation is possible, not through his own merits, but by the grace or favour of God. It is expressed in the famous saying attributed to Bunyan when he saw a criminal going to execution: "There but for the grace of God goes John Bunyan."

In mythology three goddesses (Aglaiā, brightness; Euphrosyne, joyfulness; and Thalia, bloom), daughters of Zeus, were called the graces.

Grace William Gilbert. English cricketer. Born at Downend, Gloucestershire, July 18, 1848, he was the son of a doctor and himself entered that profession. In 1863 he began to play in first-class cricket matches, and in 1870 he joined the Gloucestershire team. He remained a member of it, for much of the time as its captain, until 1899. He then became manager of the London County Cricket Club, continuing to play cricket almost until his death, Oct. 23, 1915.

Great as batsman, bowler and fieldman, Grace played cricket for 50 years, and for over 30 was a leading figure in first-class cricket, in which his exploits won for him the title of champion. Some of his feats have been surpassed by others, but when all is taken into account, he remains the greatest cricketer who ever lived. In first-class cricket he scored over 50,000 runs and took over 2800 wickets. In 1871 he scored 2739 runs in the season, and in 1895 he scored 2346. His highest score was 344. In addition to being captain to Gloucestershire, he captained England in a number of test matches against Australia, and was for long the recognised leader of the Gentlemen in their matches against the Players, one such occasion being on his 50th birthday. In 1891-92 he captained the team that went to Australia.

Grace's knowledge of the game was unrivalled. For years his massive figure and black beard dominated every cricket field on which he played, whilst his name was familiar in every quarter of the land. To mark his services *The Daily Telegraph*, in 1896, raised a shilling fund for him. Grace wrote a book on cricket. Two of his brothers, Henry Mills Grace and George Frederick Grace, were also noted cricketers.

Gradient Term applied to the degree of slope on a road or railway. As a steep rise affects the hauling power of an engine, the gradient on most railroads seldom rises above 1 in 80.

The term is applied also to the difference in barometric pressure between two places at a distance from one another, the gradient being measured by $\frac{1}{10}$ ths of an inch difference between the barometer readings at a distance of 15 nautical miles.

Grading Method of marking and arranging agricultural produce, so as to show its quality. In 1928 a national scheme of grading was introduced into Great Britain. It is used for apples, eggs, potatoes and other foodstuffs. At certain places there are stations for grading the fruits and vegetables.

Graeco-Persian Wars. See GREECE, THERMOPYLAE, MARATHON, SALAMIS.

Grafting In gardening the removal of a bud or branch (scion) to the stem (stock) of a more vigorous tree. By this method the graft or scion becomes invigorated by its union with the stock, thus resulting in earlier and increased production of flowers and fruits.

Different methods are followed, such as tongue-wedge, saddle and cleft grafting. In tongue grafting a wedge-shaped opening is made in the stock, and the scion is cut to fit it and embedded firmly. The graft is protected by wax or clay until a union of the tissues is effected.

Grafting is also used in surgery. A piece of skin or bone is grafted on to another piece in order to cure a wound or for some other curative purpose.

Grafton City and river port of New South Wales. It stands near the mouth of the River Clarence, 310 m. from Sydney and 45 from the sea. There is a trade in the produce of the surrounding district, some shipping is carried on and there are sugar mills. Pop. 6400.

Grafton Duke of. English title borne by the family of Fitzroy since 1675. Henry Fitzroy, son of Charles II., and Barbara Villiers, Duchess of Cleveland, was made Duke of Grafton in 1675. Lord High Constable under James II. he transferred his allegiance to William III., and died fighting for him in Cork in 1690. Augustus Henry, the 3rd duke (1735-1811), was a prominent statesman of his time. A supporter of Chatham, he was 1st Lord of the Treasury and nominally Prime Minister in 1766-67, and Lord Privy Seal in 1771-75 and 1782-83. The 7th duke, a general, who fought at Inkermann, died in 1918, and was succeeded by his son. His eldest son is known as Viscount Ipswich, and the family seat is Euston Hall, Thetford.

The **Grafton Gallery** is a picture gallery in Grafton Street, Piccadilly, London, W., where exhibitions are held from time to time.

Graham Sir James Robert George. English politician. Born June 1, 1792, at Netherby, he was educated at Westminster School and Oxford. He received a training in diplomacy when in 1813 he acted as private secretary to the British minister in Sicily. In 1818 he entered the House of Commons as a Whig, and after an absence returned to it in 1826. In 1824 he succeeded to the family baronetcy. In 1830 Sir Robert was made First Lord of the Admiralty, but he resigned in 1834. From 1841-46, he was Home Secretary in the ministry of Sir Robert Peel. He succeeded Peel as leader of his party in 1850, and from 1852-55 was again First Lord of the Admiralty. He died Oct. 25, 1861.

Graham Peter. Scottish painter. Born in Edinburgh in 1836, he studied art and soon began to exhibit. In 1866 he settled in London. He was elected R.A. in 1881, and died Oct. 19, 1921. Graham is known for his pictures of scenery in the Scottish Highlands and especially for his cattle. "A Rainy Day" is in the Tate Gallery, London.

Graham Stephen. English writer. Born in 1884, he spent many of his early years in Russia, living among the peasants. He also travelled over a large part of Europe and Asia. As a writer he made his name with his books on Russia, notably *A Vagabond in the Caucasus* and *Changyng Russia*. Having been also in America and Africa, Graham joined the Scots Guards, and served in France in 1917-18, recounting his experience in *A Private in the Guards*. After the war he returned to his wandering life, and as a result wrote, among other books,

'Children of the Slaves, Russia in Division and The Gentle Art of Tramping.

Graham William. British politician. Born at Peebles, July 20, 1887. He was for a time in the civil service. In 1913 he was elected to the city Council of Edinburgh and, having become a figure in the Labour movement, he entered the House of Commons as M.P. for Central Edinburgh in 1918. Showing a grasp of financial matters, he was Financial Secretary to the Treasury in 1924, and from 1929 to 1931 was President of the Board of Trade. In Aug., 1931, he resigned office and was chosen deputy leader of the Labour Party in Parliament, but lost his seat at the general election in Oct. His writings include *The Waves of Labour*. He died Jan. 8, 1932.

Grahame-White Claude. British aviator and aeronautical engineer. Born Aug. 21, 1879, he was educated at Bedford Grammar School. Starting in business as a motor engineer, he soon turned to aviation, becoming the first Englishman to be granted an aviation certificate. In 1909 he started an aviation school in Paris, and the next year won the Gordon Bennett Cup. He established the Grahame-White Aviation Company which owned Hendon Aerodrome, and during the Great War built aeroplanes for the government. He wrote *The Story of the Aeroplane*, 1911, and other works on the same subject.

Graham's Land the Antarctic Ocean. It lies S. of Tierra del Fuego and N. of Alexander I. Land, and is a dependency of the Falkland Islands. It was discovered in 1832, but not until 1928 was it found to be an island. On it the Argentine Government has built a meteorological station.

Grahamstown City of the Cape Province, S. Africa. In the E. of the Province, it is the capital of the Albany district, and is 40 m. from the sea at Port Alfred. Grahamstown possesses Rhodes University College and S. Andrew's College, one of the leading public schools in the country. There is a trade in wool and other produce. Pop. (white) 7652.

Grail Word for a vessel or a cup. The Holy Grail is the vessel out of which Jesus Christ drank at the Last Supper. Many legends have grown up around it. One is that Joseph of Arimathea used it to collect the blood from the wounds of Christ, and later carried it to England. Romances were written about the Grail, notable ones being by Chrétien de Troyes and Robert de Borron. The Grail figures largely in the Arthurian legends. In Malory's *Morte d'Arthur* a sight of the Grail is the reward of the sinless knight, and the knights go off in pursuit of it. Tennyson follows out the idea, and for a moment Galahad sees the Grail. It also figures largely in Wagner's *Parsifal*.

Grain Unit of weight. It is supposed to be the weight of a grain of corn as it comes from the middle of a ripe ear. 7000 grains make a lb. avoirdupois, 5760 grains make a lb. Troy and 24 grains make a pennyweight.

Grain Cereals grown for food. There are five principal grains, wheat, maize, barley, oats and rye. The dealers in them are known as the grain market, its centre being Chicago, but much grain is dealt with in Liverpool. To store it immense elevators have

been erected, chiefly at the ports. In 1929 the world's grain crop was estimated at 1,833,000,000 quarters. See WHEAT.

Graining Art of producing a grain pattern or fibrous surface upon a material. In painting it refers to the imitation of the natural grain and colour of one wood upon another. In leather-work the term is applied to the treatment of skins to imitate morocco and other leathers; in paper-making to the embossing of papers to resemble leather, and in bookbinding to the production of a pattern on calf bindings.

Grammar Science of the right use of language, or a book which teaches it. Each language has its own grammar, which teaches the right use of words in relation to one another.

In England, schools for boys, set up at the time of the revival of learning, especially during the time of Edward VI., were called grammar schools, because Latin grammar was taught therein. Many of them e.g., Leeds Grammar School and Bedford Grammar School, still retain this name.

Gramont Philibert de. French courtier. Born in 1621, he joined the army and served with distinction in Flanders and Spain. For an intrigue with a mistress of Louis XIV. he was exiled to England, 1662-64, where he attended the court of Charles II., and where he married Elizabeth Hamilton. He several times revisited England on diplomatic missions, and died in Paris, Jan. 10, 1707. In 1713, what purported to be his dictated *Memoirs* were published. Really written by his brother-in-law, Anthony Hamilton, they give a lively and vivid picture of the time.

Gramme Metric unit of weight. It is equivalent to approximately 15.432 grains and is equal in weight to one thousandth of a litre of distilled water. See METRIC SYSTEM.

Gramophone Machine for recording sound. It is constructed on the same principle as the phonograph invented by T. A. Edison in 1876, but has a recording disk instead of a cylinder, the sound record being cut in the form of a spiral groove on the disk. The record is mounted on a spindle which is rotated by means of a clockwork mechanism wound by hand or by an electric motor, the movement being controlled by a governor. The reproducer holding the sensitive diaphragm and needle is attached to a movable tubular arm which readily swings round to follow the course of the needle upon the record. In recent models the old sound box, tone arm and horn have been replaced by an electromagnetic system of reproduction, with valve amplification as in wireless.

The manufacture of gramophones and records is a large industry, the word "gramophone" itself being a protected trade name.

Grampians Mountain range of Scotland. It stretches across the country from Aberdeenshire to Dumbartonshire and Argyllshire, and forms a natural boundary between the N. and the S. The highest point is Ben Nevis, but there are others over 4000 ft. high and many over 3000 ft. Among these are Ben Macdui, Ben Cruachan, Ben Lawers, Ben Lomond, Cairngorm, Cairntoul and Ben Alder. From the range, many rivers flow to the north and south.

A mountain range in Victoria, Australia, is called the **Grampians**. It lies in the west of the state, and has Mount William as its highest point.

Grampus Cetacean of the dolphin family (oracgladiator). Ranging from Greenland to the Antarctic, it sometimes attains a length of 21 ft., is black above and white beneath, with rounded flippers and formidable teeth. Fierce and voracious it is called the killer. It swallows live porpoises, seals and small dolphins, and packs of them hunt fully grown whales.

Granada City of Spain. The capital of the province of the same name, it is 63 m. from Malaga and is famous as an old Moorish stronghold. Near it is the Alhambra (q.r.). The chief buildings are the cathedral, with a chapel in which Ferdinand and Isabella are buried, the university buildings and some picturesque remains of Moorish days, including parts of the city walls. The city has some manufactures and does a considerable trade. Its golden age was for some centuries before 1492, when it was the capital of the Moorish kingdom of the same name. Pop. (1930) 109,615.

A city of Nicaragua is called **Granada**. It stands on the Nicaragua, 28 m. from Managua, and has a university. Pop. 18,000.

Granada Moorish kingdom in Spain. It grew up around the city of Granada, and having been part of the district ruled by the caliphs of Cordova, became independent about 1238. It remained with its own rulers for about 200 years. The land was conquered by the Spaniards and in 1492 the last king of Granada, Boabdil, gave up his throne and went into exile. The kingdom was in the extreme south of the country, in the district now called Andalusia. It included Malaga as well as Granada.

Granby Marquess of. Title borne by the eldest son of the Duke of Rutland. The most famous holder was John Manners, the eldest son of the 3rd duke. Born Aug. 2, 1721, he was educated at Eton and Cambridge and assisted in the suppression of the Jacobite rebellion in 1745. In command of the British forces in Germany during the Seven Years' War, 1759, he did brilliant work in several battles, including Warburg in 1760. In 1766 he became Commander-in-Chief of the British Army. He had a seat in parliament from 1741 until his death, Oct. 18, 1770.

Grand Sarah. English novelist, whose real name was Frances Elizabeth M'Fall. A daughter of a naval officer, Edward Clarke, she married, at the age of 16, an army surgeon named M'Fall, who became a colonel in the R.A.M.C. Her first novel was *Idealia*, but the most famous was *The Heavenly Twins*, 1893, which made somewhat of a sensation in its day. Later she wrote *The Beth Book*, *The Wined Victory*, *Adam's Orchard* and *Variety*. Madame Grand took some part in the movement for women's rights, and in the municipal affairs of Bath, of which city she was mayoress, 1923 and 1925-29.

Grand Alliance War of the. Known also as the war of the League of Augsburg, it was the third of the wars waged by Louis XIV. against Spain, the Empire, Great Britain and Holland. In 1688 Louis sent his troops into Germany, more as a diplomatic threat than for war, and they plundered the country round Augsburg. The

League of Augsburg took up the challenge and, converted into the "Grand Alliance" by the addition of new members in 1689, waged war against Louis.

The war was fought on the Rhine, in the Low Countries, in Ireland and on the sea. The outstanding personalities were Luxembourg, William of Orange, Vauban and Catinat. The chief occurrences were the Siege of Limerick (1690), Fleurus (1690), Staffarda in Piedmont (1690) and the Siege of Namur (1692), and in 1693 were Neerwinden and Marsaglia. At sea the Battle of La Hogue was won by Admiral Rooke in 1691.

Grand Bank Part of the N. Atlantic Ocean. It lies off Newfoundland and covers about 500,000 sq. m. The bank is really a ridge or elevation of the ocean bed, its greatest depth being only 160 fathoms. It is noted for the cod which abound here.

Grand Canal Name given to several canals. The most notable is the one which forms the chief highway of Venice. It runs right through the city with palaces on its banks. Another Grand Canal is in China. This goes from Hangchow to Tientsin, a distance of 850 m. The Yangtse-Kiang divides it into two parts; the section between the Yangtse-Kiang and the Yellow River was cut, perhaps, as early as 600 B.C. The last part dates from about 1280.

The **Grand Canal** of the Irish Free State goes from Dublin to Ballinasloe. It is 80 m. long and has branches which add another 65 m. to its length.

Grand Canyon See CANYON, COLO-RADO, ARIZONA.

Grand Duke European title. It first appeared in 1567 when Pius V. made the Duke of Tuscany a grand duke. This title was kept by his successors until 1859. In 1815, several of the German rulers were given this title, and from that time until 1918, it was borne by the rulers of Hesse, Baden, Oldenburg and Mecklenburg. It was also the title borne by members of the imperial family of Russia. To-day the only bearer of the title is the ruler of Luxemburg, who is the grand duchess.

Grand Falls Town of Newfoundland. It stands on the Exploits River, about 20 m. from its mouth. A railway connects it with Botwood, its port. It takes its name from falls in the river, which provide power for the large paper mills, to which the town owes its existence. Pop. 3800.

Another **Grand Falls** is in Labrador. This is a waterfall, one of the finest in the world, on the Hamilton or Grand River, over 300 ft. high.

A third **Grand Falls** is on the St. John river in New Brunswick. Here, 200 m. from St. John, is a small town called Grand Falls or Colebrook. Pop. 1300.

Grand Fleet Name given to Great Britain's main naval force in the World War. It consisted of about 400 ships, there being several squadrons of battleships with their attendant cruisers, destroyers and submarines. It was based at Scapa Flow, Invergordon and Rosyth, and made periodical sweeps through the North Sea. It fought only one action, Jutland, but its presence on the seas had a great influence on the course of the war. It was commanded at first by Sir John (later Earl)

Jellieco, and after Nov., 1916, by Sir David (later Earl) Beattie.

Grand Jury Superior kind of jury. It consists of any number between 12 and 23, and its duties are, at the opening of the assizes, to see if there is adequate reason for sending the cases for trial. The grand jury examines the case of each person charged, and, if satisfied, returns what is called a true bill. See JURY.

Grand National English steeplechase. It takes place in March or April at Aintree, near Liverpool, and is one of the sporting events of the year. The course is about 4½ m. long and there are something like 30 jumps. The race has been run regularly, except during 1916-18, since 1839.

Grand Pré Village of Nova Scotia. It is 46 m. from Halifax and is associated with the expulsion of the Acadians by the British in 1755. This is the subject of Longfellow's poem *Evangeline*.

Grand Prix International horse-race, run in summer at Longchamps, France. The course is 1 mile, 7 furlongs in length, and the stakes are 250,000 francs, the largest in Europe. This race was won three years in succession by English owners, from 1919-21, and again in 1928 by Lord Derby's horse, "Cris de Guerre."

Grand Rapids City of Michigan. It stands on the Grand River, and is an important railway centre. There are some manufactures and a trade in fruit and grain. Pop. 161,200.

Grand Union Canal Canal system in England. It was formed in 1928 when the Grand Junction Canal was united with the Regent and other canals. In 1931 the Leicester and Loughborough navigation and the Erewash Canal were acquired. The system thus provides water communication between the Thames and the Trent, and includes nearly all the canals between these two rivers.

Grange-over-Sands Watering place and urban district of Lancashire. It is situated on Morecambe Bay, 215½ m. from London by the L.M.S. Rly. Pop. (1931) 2618.

Grangemouth Burgh and seaport of Stirlingshire. It stands on the S. side of the Firth of Forth, at the terminus of the Forth and Clyde Canal, and is served by both the L.M.S. and L.N.E. Rlys. There are large docks, and its trade is chiefly in coal, iron ore and oil. Pop. (1931) 11,798.

Granger James. English writer and print collector. Born in Dorset in 1723, he studied at Christ Church, Oxford, and became Vicar of Shipplake in Oxfordshire. His best work is *The Biographical History of England, from Eibert the Great to the Revolution*, 1769. This was lavishly illustrated with portraits that he had collected from other sources, hence the term grangerising. He died April 4, 1776.

Granite Igneous rock of a crystalline and granular character. It is composed typically of quartz, felspar and mica, the latter mineral being in some granites replaced by hornblende. Minute quantities of other minerals such as zircon, apatite and rutile are usually present. Granites vary greatly in texture and colour, and

are used largely as building stones and for paving, etc. They form large intrusive masses generally near the centres of mountain ranges, and occur in Cornwall, Devon, Wales and Aberdeenshire.

Grant James. Scottish novelist. Born in Edinburgh, Aug. 1, 1822, he served as ensign in the army, 1840 to 1843, when he resigned and entered an architect's office. He soon, however, devoted himself to literary work, producing his first novel, *The Romance of War*, in 1845. *Adventures of an Aide-de-Camp*, *The Yellow Frigate*, and *Playing with Fire* were others among his 56 novels. He also wrote historical works, including *Old and New Edinburgh* and *Scottish Soldiers of Fortune*. He died in London, May 5, 1887.

Grant Ulysses Simpson. American soldier and statesman. Born in Ohio, April 27, 1822, the son of a farmer, he was educated for the army at West Point. He served in the war against Mexico, 1845-48, but left the army in 1851 and became a farmer. He rejoined on the outbreak of the Civil War, and soon came to the front. Given a command, he took Fort Henry and Fort Donelson, and in 1862 fought the Battle of Shiloh. At the head of an army he took Vicksburg, after a long resistance won the Battle of Chattanooga and gained other victories. In 1861 he was appointed Commander-in-Chief, and the duel between him and Lee was the concluding stage of the struggle. Helped by superior resources, Grant was able to wear down his opponent and in April 1865 Lee surrendered.

In 1868 Grant, as a republican, was elected president, and in 1872 he was again chosen. His terms of office saw the settlement of the Alabama dispute with Great Britain. He retired from public life in 1876, but lived until July 23, 1885. In 1884 he lost his money through a banking failure, so earned something by writing his *Personal Memoirs*. Grant's tomb, overlooking the Hudson, is a prominent New York landmark.

Grantchester Village of Cambridgeshire. It stands on the Cam, once called the Granta, 2½ m. from Cambridge. Before its old mill was burned down in 1928, it was a very picturesque place. It owes some of its fame to Rupert Brooke's references to it.

Grantham Borough and market town of Lincolnshire. It stands on the Witham, 25 m. from Lincoln and 105 from London. It is a junction on the L.N.E. Rly., and is connected by canal with Nottingham and elsewhere. The chief building is St. Wulfstan's Church, a large edifice with a fine spire. The Angel Inn was once the property of the Knights Templars. There is a market cross in the market place. The principal industries are engineering works and the making of agricultural implements. Grantham has associations with Sir Isaac Newton. Pop. (1931) 19,709.

Grant Land District in the Arctic Circle. It belongs to Great Britain and forms the N. part of Ellesmere Island. It was discovered in 1875.

Granton Seaport of Midlothian. It is part of the city of Edinburgh, and is situated on the Firth of Forth. There is trade in coal, timber and grain. The harbour is used by the North Sea fishing fleet.

Grantown Market town of Moray, or Elginshire. It is on the

Spey, 22 m. from Forbes, on the L.M.S. Rly. It is the chief town of the district called Strathspey, and owing to its beautiful scenery is a holiday and health resort. Near is Castle Grant, the seat of the Countess of Seafield.

Granville-Barker **Harley** **Granville** English dramatist. Born in London, Nov. 25, 1877, he took up the profession of actor, but turned to writing plays, his first, *The Marrying of Anne Leck*, being produced in 1901. This was followed by *The Voyage Inheritance*, 1905; *Waste*, 1907; and *The Madras House*, 1910, etc. He has also written plays in collaboration with other authors, e.g., Laurence Housman, Bert Thomas and Dion Clayton Calthrop. His non-dramatic works include *A National Theatre* (with William Archer), 1907, and *The Red Cross in France*, 1916. For a time in 1907 he was a successful manager of the Savoy Theatre, with J. E. Vedrenne, with whom he had earlier, in 1904, managed the Court Theatre. His wife, Helen Granville-Barker, was the author of novels and, in collaboration with her husband, wrote several plays and translated plays from the Spanish.

Granville Earl. See CARTERET, JOHN.

Granville Earl. English title borne since 1833 by the family of Leveson-Gower. The 1st earl was Lord Granville Leveson-Gower (1773-1816), a son of the Marquess of Stafford. He was ambassador in St. Petersburg and Paris. The title is still held by his descendants. The family seat is Stone Hall, Stafford.

The 2nd earl, Granville George Leveson-Gower, was born May 11, 1815, and was educated at Eton and Christ Church, Oxford. He entered the House of Commons in 1836, and in 1846 succeeded to the earldom. For the next 35 years he was a leader of the Liberal party, which he led in the House of Lords, from 1855 until his death. In 1851 he was Foreign minister, and in 1853 Lord President of the Council. He was again Lord President, 1855-58, and 1859-66. Under Gladstone he was Colonial Secretary, 1868-70, Foreign Secretary, 1870-74 and 1880-85, and Colonial Secretary, 1886. Granville died March 31, 1891.

Grape Fruit of various shrubs of the vine family. The grape vine (*Vitis vinifera*), indigenous to the Mediterranean region, has been cultivated throughout historic times for its clustered, edible berries. There are 1500 varieties, most of them grown for wine-making. Some are seedless, e.g., sultanas. They are raised under glass in Britain, and in the open in Europe, especially France, Italy, Africa, Australia, Canada, Argentina and the United States. Several native N. American vines are cultivated, e.g., *V. labrusca*; some have been introduced into France. See VINE; WINE.

Grape Fruit Fruit of an evergreen tree (*Citrus decumana*), also called the shaddock. It has oval leaves and white flowers, and bears fruit like a large yellow orange. It is cultivated in California and parts of Asia, and has become very popular on the dinner table, where its slightly acid taste makes it a pleasant opening to the meal.

Graph Diagram or chart used to interpret formulae and statements in science and commerce. In mathematics the use of graphs is of value in solving problems; in engineering and statistics the graphical method

has long been employed. During recent years graphs have been introduced for expressing related facts in commerce such as the rise and fall of sales or of exports. The ordinary weather chart showing the variations in atmospheric pressure is a form of graph.

Graphite Form of carbon. It occurs as to the touch with a soft, black mineral, greasy and usually contains iron oxide and other impurities. Known also as plumbago or black-lead, it is used as a lubricant, for stove polish and for making pencils and crucibles. Graphite occurs in veins or cavities in schistose, slaty and igneous rocks in Cumberland, Ceylon, Madagascar and Canada. Synthetic graphite from coal or coke is now in use for the lubrication of machinery.

Grapnel Small anchor. It has four or five claws or flukes and is used to hold small boats or vessels. It is also called a grappling iron.

Grapple Plant Flowering herb of the natural order *Pedaliaceae*. It grows in South Africa and bears purple flowers. The fruit has on it strong hooks which cling to the skin of animals, thus giving the plant its name. Great pain is caused if the fruit gets entangled in the mouth of the animal.

Grasmere Lake and urban district of Westmorland. The lake, which is about a mile long, is situated amid beautiful scenery in the middle of the Lake District. Grasmere stands on the Rothay, where it enters the lake and is 4 m. from Ambleside and 12 from Keswick. It is reached by road from either. The chief building is St. Oswald's Church, with the tomb of Wordsworth in the churchyard. Dove Cottage, where he lived, is near. A rush-gathering festival is held here every summer, and the sports in August attract many visitors. Pop. (1931) 988.

Grass In its widest sense all plants belonging to the natural order *gramineae*. It thus includes wheat and other cereals. More usually, however, it is confined to the herbage that grows in fields and on open spaces, and farmers distinguish between grassland which is used for pasture, and arable which is sown with wheat and other crops. They also distinguish between permanent and temporary grassland; the latter is sown with grass seed and after a year or so, when hay has been produced, is ploughed up again. For this purpose the kinds of grass which grow quickly are sown. Nurserymen supply a special seed for garden and other lawns, for they require a much finer grass than the ordinary field variety.

In Great Britain in 1928 about 21,000,000 acres were under grass, apart from what are called rough grazings on hillside, etc. Of this some 4,000,000 acres were sown with grass for hay making.

Grasshopper Name of various straight-winged insects, whose hindmost legs are adapted for leaping. In the long-horned or green grasshopper the chirp of the male is made by friction of the wings. In the green or brown short-horned family, which includes the locust, the chirp is produced by rubbing the hind legs against the wings. See CRICKET; LOCUST.

Grass of Parnassus Genus of perennial herbs of the saxifrage order. The British species (*Parnassia palustris*) is distributed all

GRASS SNAKE

over Europe, Asia and North America. Its several solitary white flowers contain a circlet of scales fringed with a comb of yellow, knotted hairs.

Grass Snake Snake of a non-venomous kind, found in Europe and occasionally in Great Britain, especially in the south. In colour it is olive-brown, greyish brown beneath, with light and then dark neckbands; hence it is sometimes called the ring snake. It averages 3 or 4 ft. in length and lives on frogs and fish.

Gratian Roman emperor. A son of A.D. 359 and in 367 was given a share of the imperial authority. In 375, on his father's death, he and his infant brother, Valentinian II., became joint rulers of the Western Empire. During this reign the Goths were very dangerous, winning their great victory at Adrianople in 378. In 383 Gratian was defeated in battle by a rival, Maximus, after which he was killed by his own soldiers.

Another Gratian, Francis Gratian, was a mediaeval priest. He lived between about 1090 and 1150 and was for the most of that time, a Benedictine monk. He collected the canons of the church into a work called *Decretum Gratiani* and is therefore regarded as the founder of canon law.

Grattan Henry. Irish statesman and orator. Born in Dublin, July 3, 1746, he was educated at Trinity College, Dublin, and became a barrister. In 1775 he entered the Irish House of Commons as M.P. for Charlemont and soon came to the front as an orator. He had much to do with securing legislative independence for Ireland in 1782 and urged the cause of Ireland in other directions. In 1805 he was elected M.P. for Malton and sat in the English Parliament until his death in London, June 6, 1820. He was buried in Westminster Abbey.

Grave Place of burial. In England most persons are buried in cemeteries, where a piece of ground is bought for the purpose. Some, however, are buried in churchyards, where a parishioner has a right to be buried if the churchyard is still open. Many graves dating from prehistoric times have been found and examined, and from them much valuable information has been obtained about the manners and customs of early man.

To look after the graves of the soldiers who fell in the Great War a commission has been set up. There are offices at 82 Baker St., London, W.1., and is responsible for about 600,000 graves in France, Mesopotamia, Gallipoli and other theatres of war. There are in 1600 cemeteries and, as far as possible, a record is kept of each man buried there. The graves have uniform headstones.

Gravel Deposits of small rock fragments. They occur in river valleys, or on the seashore, usually mixed with more or less sand or clay. The pebbles vary very much in size, angularity and composition. When composed of small angular fragments, a gravel is termed a grit, and this may pass into a coarse, sharp sand. Gravels are worked in the Thames, and Trent valleys and at Doncaster, for making concrete aggregates, paving and rough-casting walls.

Gravelines Seaport of France. It stands on the little river Aa, about 1 m. from its mouth, and is 15 m. from Dunkirk and 13 from Calais. There is a

575

GRAVITATION

large harbour from which timber and coal are shipped. Pop. 2000.

Just outside Gravelines a battle was fought between the English and Spanish on the one side, and the French on the other, on July 13, 1555, in which the French were routed.

Gravelotte Village of France. It is in Lorraine, about 6 m. from Metz, and famous because of the battle fought here between the French and the Germans, Aug. 6, 1870. The Germans, 150,000 strong, attacked a French army of 100,000 men under Bazaine, and, after some hard fighting, forced them to take refuge in the fortress of Metz. The Germans had over 20,000 men killed and wounded. The French lost about 13,000.

Graves Alfred Perceval. Irish poet. Born in Dublin, July 22, 1846, son of Charles Graves, Bishop of Limerick, he was educated at Trinity College, Dublin. In 1869 he entered the civil service and was an inspector of schools from 1875 to 1910. He helped to found the Irish Literary Society, of which he was twice president, and did much to promote the revival of interest in folk songs and music. His many works include *Songs of Old Ireland*, *Irish Songs and Ballads*, *Songs of Irish Wit and Humour*, *Songs of Erin*, *Welsh Poetry Old and New* and *To Return to All That*, an autobiography. He wrote the popular song "Father O'Mynn." He died Dec. 26, 1931, two days after completing the MS of a book for children on *The Lives of British and Irish Saints*.

Graves had four sons who were known as writers. Philip Perceval Graves became a member of the staff of *The Times*, which he represented at Constantinople. Robert Ranke Graves served in the Great War and became Professor of English in Cairo in 1926. He wrote several volumes of poems and an autobiography, *Good-bye to All That*, 1929. Charles Graves became a journalist and published *The Argentine and the Greek*. John Graves published *The Boys' Book of Football* in 1931.

Charles Larcum Graves, a brother of Alfred Graves, was assistant editor of *The Spectator*, 1899-1917. In 1902 he joined the staff of *Punch*, for which he wrote a great deal, including *Punch's History of Modern England*. He also wrote *Wisdom While You Wait*, *Hustled History*, and other books with E.V. Lucas, as well as the *Life of Sir Hubert Parry* and *New Times and Old Rhymes*.

Gravesend River port, market town and urban district of Kent. It stands on the south side of the Thames, 24 m. from London and is reached by the Southern Ry. A ferry connects it with Tilbury, north of the river. Shipping is the principal industry and the port is an important pilot centre. There are paper mills and printing works. Gravesend is also a yachting centre. Pop. (1931) 35,490.

Gravitation Law relating to the attractive force between material bodies. It was defined by Newton in the statement that every body attracts or tends to approach every other body with a force proportional to the masses and inversely as the square of the distance. This applies equally to the planets as to the smallest particle of matter. As an outcome of gravitation, we have weight as a property of matter, giving the tendency of a body to fall towards the earth. Gravitation also accounts for the orbital move-

ments of the planets round the sun, and the movements of satellites round the planets.

Gray Thomas. English poet. Born in London, Dec. 26, 1716, he was educated at Eton and Cambridge, meeting at Eton, Horace Walpole, with whom he toured the Continent, 1739-41. On his return he settled in Cambridge, becoming in 1768 Professor of Modern History. His output of poetry was small, but of a very high standard, and marked with a depth of feeling uncommon in his age. His first poem, *Ode to Spring*, appeared in 1712; in 1750 came his most famous, *Elegy Written in a Country Churchyard*. He also wrote *Progress of Poesy*; *The Bard*; *The Fatal Sisters* and *The Descent of Odin*. In 1757 he was offered, and refused, the laureateship. He died July 30, 1771. He was buried at Stoke Poges.

Grayling Genus of freshwater fishes (*Thymallus*) of the salmon family. It is a small mouthed, large-scaled fish and its enlarged dorsal fin has from 20 to 24 rays. The beautifully iridescent *T. eugaris*, which frequents clear English streams, has been introduced into Scotland. It rarely attains 4 lbs. in weight, and spawns in spring; time. Mafch to June is the close season.

Grays Urban district of Essex, in full, Grays Thurrock. It is 20 m. from London and stands on the Thames. Bricks and cement are made here. Pop. (1931) 18,172.

Gray's Inn One of the four inns of court in London. The buildings are in the angle formed by Holborn and Gray's Inn Road. The finest of these are the hall, erected in the time of Elizabeth, and the chapel. The library has a valuable collection of books and manuscripts, and consists of the old library and a new one, opened in 1929. Behind the two squares are gardens covering 30 acres, which were laid out by Francis Bacon. The name comes from the fact that the land belonged to Lord Gray de Wilton, who had a house here. In 1733 the Honourable Society of Gray's Inn acquired it and it has since been closely associated with the practice of the law. The sign of the inn is a griffin.

Graz City of Austria. It stands on the River Mur, 90 m. from Vienna, and is the chief town of the district of Styria. There is a university, and overlooking the city is the citadel. It is a manufacturing centre, and has a broadcasting station (252.1 M., 7 kW.). Pop. 152,700.

Great Barrier Reef Coral reef off the coast of Australia. It is 1200 m. long and covers 100,000 sq. m., and it serves to protect the coast of Queensland. Between the reef and the mainland is a channel, in some places 30 m. wide, in which are numerous islands. There are a number of sea passages through the reef, which was crossed by Captain Cook.

Great Bear Lake and river of Canada. Both are in the North-West Territories, within the Arctic Circle. The lake has a length of 176 m. and covers 11,200 sq. m. The river flows from the lake to the Mackenzie River, about 100 m. away.

The **Great Bear** is also a constellation in the Northern Hemisphere. It is also known as the Plough, or, more correctly, Ursa Major.

Great Britain Name in general use for the island that contains England, Wales and Scotland. It is thus the larger part of the United Kingdom

of Great Britain and Northern Ireland, and the headquarters of the British Empire. It was used to distinguish this island from Brittany, or little Britain, and was first used officially in 1603, when James I. called himself King of Great Britain. See ENGLAND; SCOTLAND; WALES.

Great Dane Breed of dog. Classed as a German Boarhound and probably containing greyhound blood, it is the largest European mastiff, and stands about 30 in. high, weighing from 120 to 170 lb. Gracefully built, it carries the head high, and is crop-eared, long-tailed and sleek-coated; in colour it is bluish-grey, black or black-and-yellow. Formerly used in deer hunting, it has developed in Britain since 1870 as companion and show dog. It is amenable to discipline when trained to indoor manners, but should never be chained.

Great Eastern Name of a British steamship. She was built in 1856, Isambard Brunel being her designer, and was called the Leviathan. She was 692 ft. long and her tonnage was 18,900, making her the largest vessel in the world. She was built on the Thames at Millwall, but was not a success, and after a time she was used for laying the Atlantic and other cables.

Great Fire London conflagration, in a bakery in Pudding Lane, in four days it devastated 400 streets and lanes, 13,200 houses, St. Paul's Cathedral, 89 parish churches, the Guildhall and other public buildings, schools, markets and 52 halls. The area affected comprised 373 acres within, and 63 acres without the walls, from the Tower to the Temple Church. The loss of property was put at £10,730,500; 200,000 people were made homeless, but casualties were very few.

Great Fish Canadian river. Rising in Lake Superior, north of Lake Aylmer, it flows 54 m. for 560 m. into the Arctic Ocean at Elliot Bay. Rapids and rocks impeded navigation. Sir George Back, whose name it sometimes bears, discovered and explored it in 1834. Franklin's expedition perished near its mouth in 1818.

Another **Great Fish** is a river of Cape Province, S. Africa. It rises in the Sneeuwbergen Mts., and after a course of 230 m. reaches the Indian Ocean. **Great Fish Bay** is an inlet of the Atlantic in the S.W. of Portuguese E. Africa.

Great Gable Mountain of Cumberland. It is about 7 m. from Keswick, near Scafell. It is 2950 ft. high and its ascent is a favourite climb. Green Gable, a hill near, is 2500 ft. high. There is a memorial on the summit from which one of the finest views in the country is obtained.

Great Harry English warship. She was built by Henry VIII. in or about 1514 and named after him. Her tonnage was 1000 and she had two decks with guns on each. A painting of the vessel by Holbein still exists.

Great Lakes Name given to the five great lakes that lie between Canada and the United States. They are Superior, Michigan, Huron, Erie and Ontario and cover over 94,000 sq. m. The international boundary runs through four of them, Michigan being wholly American. The lakes form a series of steps one below the other and, by means of canals, vessels can go from

the head of Lake Superior to the S. Lawrence and Montreal, or to New York by way of Buffalo. The Saint Ste. Marie Canals connect Superior with Huron. From Huron to Erie Lake St. Clair and the Detroit River are utilized, between Erie and Ontario the Welland Canal (q.v.) has been cut in order to avoid the obstacles at Niagara. Since the Great War a new Welland canal has been constructed. The St. Lawrence carries the waters of the lakes to the ocean.

Great Plague Epidemic of bubonic plague which ravaged London in 1665. Many periodical visitations occurred after Saxon times—including the Black Death. Cases occurred in the winter of 1664-5 and the total number of deaths for 1665 reached 68,596, two-thirds of the population of 460,000 having fled from the city. The Great Fire of 1666 (q.v.) helped to purify London.

Great Powers Term used for the leading countries of the world. It came into use soon after the Peace of 1815, when the affairs of Europe were settled by conferences between the leading powers. At this time they were Great Britain, France, Austria and Russia. After 1871 Germany became a great power and soon Italy joined the circle. These were all European powers, but with the growth of world politics, Japan and the United States became recognised as Great Powers. The World War destroyed the position of the three empires, Germany, Russia and Austria. The peace of 1919 was arranged by five great powers, Great Britain, France, Italy, the United States and Japan.

Great Rebellion Name given to the civil war between the Royalists, under Charles I. and the Parliament. It began in 1642 and ended with the execution of the king in Jan., 1649. It is usually divided into two parts, one ending with the King's defeat at Naseby in 1645, the other being the renewal of the struggle with the aid of the Scots in 1648.

Great Salt Lake Shallow saline lake in Utah, U.S.A. Three rivers enter it, but there is no outlet, hence salts have accumulated, principally sodium chloride, less sodium sulphate and carbonate, reaching at times over 20 per cent. Salts are deposited on the shores. The area is 1500 sq. m. and depth about 20 feet.

Great Schism Name given to the period from 1378 to 1117, when there were two or more popes. It ended in 1417, when the Council of Constance elected Martin V., who was generally recognised.

Great Seal Sign of the sovereign used to signify his approval. In Great Britain it is kept by the Lord Chancellor, and is affixed by him to documents of state. A new seal was made in 1930, owing to the altered status of Ireland. Until 1707 there was a separate great seal for Scotland.

Great Slave Lake and river of Canada. The lake is in the North-West Territories, covers 10,700 sq. m., is 300 m. long, and is frozen over for about half the year. The Mackenzie River flows from the lake into the Arctic Ocean.

Grebe Family of diving birds (*Podiceps*). They are found in temperate regions and two species are found in lakes and ponds in Great Britain. These are the great crested grebe, which is nearly 2 ft. in length

and has a coloured ruff in the breeding season, and the little grebe or dabchick, which may be 10 in. long. The red-necked, horned and black-necked grebes visit Great Britain for breeding. See DABCHICK.

Greece Republic of Europe. It is at the southern end of the Balkan Peninsula and consists of a mainland area and a great number of islands. Its land boundaries are Albania, Yugo-Slavia, Bulgaria and Turkey, but it is chiefly remarkable for its enormous coastline, due to the land being deeply indented by the sea, especially on the east side, where is the Aegean Sea. The area is 49,900 sq. m.—about the size of England; this total includes Crete and the islands Scyros, Chios and many others dotted over the Aegean and fringing the coast on the other side, where is the Ionian Sea.

The north of the country was ceded by Turkey after the Great War. The centre, where are Thessaly and Attica, and the south, which is almost cut off from the rest by the Gulf of Corinth, form the historic Greece. The land is mountainous almost everywhere, but in the valleys the soil is very fertile. Wheat, barley and maize are grown, as are olives, tobacco and currants. Minerals are fairly plentiful. Athens is the capital and the only place with over 100,000 inhabitants. There are many ports including the Piræus, Salonika and Patras.

Greece is governed by a president and a ministry that is responsible to a parliament of two Houses, a senate of 120 members and a house or council elected by all adult males. Mount Atlas, where there are 20 monasteries, has its own form of government. The people belong mainly to the Greek Church. There is an army recruited by compulsory service and a small navy. The unit of currency is the drachma, stabilised at .375 to the £ sterling. Pop. (1920) 7,315,000.

HISTORY. Greece is famous as the home of the world's greatest civilisation. Many centuries before Christ Mycenæ was a powerful city with wonderful buildings, and there were doubtless others in the land. These were the work of the Minouans, who were succeeded by the Achæans and then came the Dorians. Later still, about 1000 B.C., these people were called Hellenes and from Greece their settlements spread to Asia Minor, Italy and Sicily, the islands of the Aegean Sea, and, indeed, almost all round the European and Asiatic coasts of the Mediterranean Sea. The Greece of this time is the Greece pictured by Homer.

By the 6th century B.C., Greece, or Hellas, consisted of a number of city states, each independent. The kings who doubtless ruled in many of these had disappeared; their places were taken by rulers called tyrants and each city had its slave population. Wars between them were frequent, but these were on a very small scale. Trade was active, and owing to the situation of the cities, most of this was done by sea. Among the city states Athens, Sparta, Corinth, Thebes were, or were soon to be, prominent.

Among these people there was a high degree of intelligence and soon art and literature began to flourish as they had never flourished before. From Hellas the world has received its greatest works of art in building and sculpture, some of its greatest dramatic and poetic literature, its fundamental ideas on acting and dancing, its philosophy and its politics, and a certain amount of scientific knowledge.

This civilisation reached its greatest development in Athens in the time of Pericles, the 5th century B.C., an age which, for intellectual activity, has never been equalled. This was also the time when Greece was engaged in the unequal struggle with Persia. In this the Greeks won undying fame for their valour. At Marathon on land and at Salamis on sea, they beat the Persian hosts. These victories did not, indeed, save Greece from invasion, but in the end the Persians were utterly defeated.

Only with great difficulty and in the presence of great danger had the little city states united together, and the union was never very lasting or very real. The smaller and weaker cities came under the protection of Athens, and another of the more powerful ones, and leagues, such as the Delian League, were formed, but jealousies were too strong for a single country to arise. Instead, in 431 B.C., Athens and Sparta entered upon the great struggle called the Peloponnesian War. This was ended in 404 with the defeat of Athens and the loss of her dominant position. Sparta for a short time, and then Thebes, were the most powerful of the city states.

Macedonia, a kingdom in the north of Greece and hardly regarded as part of Hellas proper, passed, in 359, under the rule of a certain Philip. He became the most powerful man in Greece and was so when he died, and was succeeded by Alexander the Great. He exercised a kind of sovereignty over Greece, but interfered very little indeed with the affairs of its little states. The position of Macedonia, in the 2nd century B.C. was challenged by Rome and in 146 B.C. Greece, its glory gone, became part of the great Roman Empire which borrowed greatly from its civilisation.

Now comparatively unimportant, Greece remained in the Roman Empire, and when this was divided, was included in the Eastern Empire, which was Greek, and not Latin in speech and customs. In 1204, on the collapse of the Byzantine Empire, Greece became part of the Latin kingdom of Romania, but it had been recovered by the emperor at Constantinople by about 1300. In the 15th century it was conquered by the Turks, who dominated it until the 19th century, although from time to time this authority was disputed by Venice.

In 1821 the Greeks revolted against Turkish misrule and, aided by Great Britain and France, Greece was created an independent kingdom in 1830. In 1833, Otto, a prince of Bavaria, became its king, but he was expelled in 1862. The throne was then offered to a Danish prince who, in 1863, became George I., King of Hellenes. He was killed in 1913 and his son and successor, Constantine, was dethroned in 1917. Constantine's son, Alexander, then had a short reign which ended in his death and in his father's return. In 1922 Constantine abdicated and in 1923 his son, George II., was exiled. In 1924 Greece became a republic with Venizelos as its foremost figure.

GREEK LANGUAGE. There are, to-day, two forms of the Greek language—one is the language which was spoken at Constantinople and throughout much of the Eastern Empire. It lost its official status as an imperial tongue in 1453, but it continued to be spoken, although in a somewhat altered form, and is to-day the language of Greece and the adjacent lands. It differs a great deal from ancient or classical Greek.

Classical Greek, the Greek in which the masterpieces of Greek literature are written,

was a dormant tongue for over 1000 years. At the revival of learning its wonderful treasures were discovered by scholars and since then it has been one of the two classical languages of the universities and schools of Europe. In most of these the study has now ceased to be compulsory, but it remains part of the education of the scholar.

The Greek alphabet consists of the following letters:—

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ
Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω
α β γ δ ε ζ η θ ι κ λ μ
ν ξ ο π ρ σ τ υ φ χ ψ ω

Greek Church Name sometimes used for the Eastern or Orthodox Church. During the first centuries of the Christian era the church, like the Empire, was divided into two branches, the Eastern and Western. The division came about gradually, but by the 9th century it was complete, as the two churches then differed about a clause in the Nicene Creed. The Eastern Church used the Greek language and is therefore known as the Greek Church.

This church does not recognise a single head, but is under several patriarchs, the chief authority being the synod, of which each country has its own. It allows the clergy to marry and gives communion in both kinds to the laity, while there are other differences in faith and ritual between it and the Roman Church. The church has about 100,000,000 adherents, but since 1917 its position in Russia, where the majority of its followers are, has been very precarious. The Anglican Church maintains friendly relations with the Greek Church. In England there are Greek churches in Bayswater, London, Manchester, Liverpool and Cardiff.

Greek Fire Inflammable composition used in mediæval warfare. It was especially employed by the Byzantine Greeks in their wars against the Saracens. It is supposed to have been composed of resin or pitch, sulphur, nitre and naphtha, with other inflammable substances, and, probably, quicklime. The formula was guarded jealously by the Byzantines and the composition was said to be able to burn under water.

Green John Richard. English historian. Born in Oxford, Dec. 12, 1837, he was educated at Magdalen College School and Jesus College, Oxford. He was ordained and held a living in Stepney for a short time. In 1868 he was appointed librarian at Lambeth Palace, but poor health soon compelled his retirement. In spite of this handicap he did a good deal of historical work and "died working" at Mentone, March 7, 1883.

Green's work is the attractive and popular *Short History of the English People*, of which many editions have appeared. He also wrote *The Making of England* and *The Conquest of England*, books in much greater detail, and articles in periodicals. In 1877 Green married an Irish lady, Alice Sophia Amelia Stopford. She also wrote on historical subjects, her books including *Henry II.* and *Town Life in the 15th Century*. Later she wrote a good deal on Irish history and politics. Mrs. Green died in 1920.

Green Thomas Hill. English philosopher. Born at Birkin, Yorkshire, April 7, 1836, the son of a clergyman, he was educated

at Rugby and Balliol College, Oxford. In 1860 he was chosen a fellow of Balliol and there he served as tutor and lecturer for the next 22 years. From 1878 until his death, March 26, 1882, he was also Whyte Professor of Moral Philosophy.

Green taught an idealistic philosophy which he had learned from Aristotle, Kant and Hegel. Owing to the number of able men who came under his influence and to other causes, his teaching has been remarkably influential, especially in the sphere of politics. It led him to advocate social reforms, such as the causes of temperance, education and housing, and to come forward as a Liberal politician. His chief writings are *Lectures on the Principles of Political Obligation* and *Prolegomena to Ethics*. Green, as Mr. Gray, is a character in *Robert Elsmere*.

Greenaway Kate. English artist. Born in London, Mar. 17, 1846, she studied art at South Kensington, Heatherley's Academy and the Slade School, and in 1868 exhibited a number of water-colour drawings. In 1877 she exhibited at the Royal Academy. Her illustrations of children dressed in the quaint costumes of the early 19th century became very popular. One of her books, *Under the Window*, 1879, had a large sale in English, French and German editions. She died Nov. 6, 1901.

Green Cross Society Society formed in 1930. Its objects are to protect the countryside and prevent litter. During the Great War the Green Cross Society was the popular name of a corps of women motor drivers, officially known as the Women's Reserve Ambulance.

Greene Harry Plunket. Irish singer. Born in Dublin, June 24, 1865, he was the son of R. J. Greene, a barrister, and a grandson of the 3rd Lord Plunket. He studied law, but the excellent quality of his voice made him abandon it for music. Studying in Stuttgart and Florence, he made his London debut as a baritone singer in Handel's *Messiah*, Jan. 21, 1888. He excels in oratorio and the interpretation of *Lieder*, and maintains that are more requisite in a singer than vocal excellence. He has written a book *Interpretation in Song*, and was for some years Professor of Singing at the Royal Academy of Music and the Royal College of Music.

Greene Robert. English poet and dramatist. Born at Norwich in 1558, he was educated at Cambridge. Settling in London, he soon became known as a writer of plays and lyrics. His principal works are the dramas *Orlando Furioso*, *The Scottish History of James IV.*, *Friar Bacon and Friar Bungay* and *Pandosto*. He also wrote a pamphlet called *Greene's Groatsworth of Wit Bought with a Million of Repentance*, in which he speaks slightly of Shakespeare and other contemporary dramatists. On his own showing he led a wild and dissolute life, and he died in poverty, Sept. 3, 1592.

Greenfinch Common British resident song bird (*Ligurinus chloris*). A stoutly-built bird, it is about 6 in. long and in colour is yellowish-green and yellow, with black wing and tail tips; the hen is of soberer hue. Its untidy, hair-lined nest shelters two broods of from 5 to 6 reddish-spotted white eggs.

Greenfly Popular name for various insects of the aphids or plant louse family. Besides green blight, black, grey and brown forms occur. Several generations of living young develop asexually, without immediate male agency. Some infest one plant species only, others migrate from host to host according to season; thus the hop aphid passes the winter on the damson. The seven British apple aphides include American blight. Five kinds attack currants and gooseberries; others affect roses and geraniums as well as corn and timber trees.

Greenford District of Middlesex, part of the borough of Ealing. It is 8 m. from London with a station on the G.W. Rly. Since the Great War, the district has been greatly developed, and various industries have been established here, including works owned by Messrs. J. Lyons & Co. The Grand Union Canal passes through the district.

Greengage Small, round, dessert variety of plum. It is a native of France and large supplies come thence each season. It is named after Sir William Gage, of Hengrave Hall, Bury St. Edmunds, who introduced it into England about 1725. The honour is also claimed for one of the Gages of Fife in Sussex, and for a Jesuit, John Gage.

Greenheart Valuable timber tree (*Nectandra rodiaei*) of the laurel order. A native of British Guiana, it reached 60 or 70 ft. in height. The close textured heart wood, greenish-yellow to greenish-brown in colour, is heavier than teak, and, as it contains an oil obnoxious to marine worms, it is extensively used in shipbuilding. Its ash-coloured bark, known as bibiru bark, is used as a febrifuge.

Greenhithe District of Kent. It stands on the Thames, 3 m. from Dartford, on the Southern Rly. The chief industry is shipping.

Greenland Island in the Arctic Ocean, one of the largest in the world. It covers 826,000 sq. m. Its length is 1600 sq. m., its extreme breadth 700 m. and only its southern part, which terminates in Cape Farewell, is outside the Arctic regions. Davis Strait lies between it and Canadian territory. The island belongs to Denmark, but nearly all the inhabitants are Eskimos. The coast is very rugged and the interior mountainous with many glaciers. The people live in a few settlements on the S. and W. coasts, the largest being Sydproven. Godhavn, on Disco Island, is the capital. The climate is very cold except for a short period each year, and the only products are whale and seal oil and furs. The trade is a state monopoly. Cod and other fish are found off the shores, and coal of poor quality has been found. Pop. 14,400.

Greenland was discovered in the 10th century and was settled by Norsemen. Presumably the climate was then more equable than it became later and this would account for the name given to the place. About 1400 the settlements were destroyed or vacated owing to increasing cold. Remains of churches and other buildings have been found. In the 19th and 20th centuries Nansen and other explorers have examined the interior of the country.

In June, 1930, some Norwegians hoisted their country's flag at a spot on the east coast of Greenland. The Danish Government raised objections to this and negotiations followed. In 1929, 1930 and 1931 several expeditions

set out to explore the interior of Greenland. One was the British Arctic Air Route expedition under H. G. Watkins. The aim of this was to find if an air route across Greenland to Canada from England was possible. A German expedition under Alfred Wegener went out and Wegener lost his life and a relief expedition was sent to search for him. Another expedition was organised by some Danes.

Greenock Burgh and seaport of Renfrewshire. It stands on the south side of the Firth of Clyde, 22 m. from Glasgow, and is served by the L.M.S. Rly. The old west church, founded in 1580, has been removed to Seaford Parade to make room for the extension of a shipbuilding yard. The church contains some fine glass. Highland Mary is buried in the churchyard. The Watt Institution, which has a fine library, is named after James Watt, who was born here. Greenock's industries include shipbuilding, engineering and sugar refining. There is also a good deal of shipping, for which there are large docks and quays. Pop. (1931) 78,948.

Greenore Seaport and watering place of Co. Louth, Irish Free State. It is on the east side of Carlingford Lough and has a regular service of steamers with Holyhead.

Green Park London park. It lies between Piccadilly, St. James's Park and Constitution Hill, with Buckingham Palace looking on to it, and covers 53 acres. It is Crown property and has been a park since the 17th century.

Greensand In geology, a formation of the Cretaceous system. It consists of sand mixed with glauconite, which gives it the greenish colour. It is divided into the Upper and Lower Greensands, between which lies the clay called Gault. It is found in Kent and Sussex, in the Isle of Wight and in the west of England. A belt of it stretches across the country from Dorset and Wiltshire to the east coast. There is also greensand in Scotland, Ireland and France. In it are sandstones that make good building stones, and sand used in glass making.

Greenshank Wading bird (*Totanus caesus*) of the snipe family. Allied to the sandpipers, it is slenderly built and is about 11 in. long, with long, olive-tinted legs, a long neck and slightly upturned black bill. It migrates in summer to Britain and breeds in Scotland. Its primitive ground-nest shelters four dark-blotched greyish eggs. Its winter wanderings embrace India, South Africa and Australia.

Greenstone In geology a convenient field name for more or less altered basic igneous rocks which have a dark greenish colour. The colour is due to the formation of chlorite and allied minerals. Greenstones occur as dykes and intrusive masses in many parts of Great Britain and comprise such rocks as diabase and diorite.

Greenwich Borough of London, one of the 28 in the county. It lies on the south side of the Thames, 6 m. from the city, and has stations on the Southern Rly. The Blackwall Tunnel and a tunnel for foot passengers link it with the north side of the river. Apart from Greenwich Hospital, its chief buildings are St. Alphege Church, the observatory and hospitals. Some of the inns, the Ship and the Trafalgar for instance, are noteworthy. The industries include engineering works and the making of cables and linoleum. Near the river is an enormous power station

for generating electricity. A new town hall overlooking the river is being planned. Pop. (1931) 100,879.

Greenwich is famous for its associations with royalty. Here, Humphrey, Duke of Gloucester, built a castle, and in a palace that succeeded it the Tudor sovereigns passed a good deal of time. Henry VIII., Mary and Elizabeth were born here. The present buildings facing the river form a fine pile. They were begun in 1667 and finished in 1705 when they were opened as a home or hospital for sailors. They comprise several blocks, one of which was designed by Wren. The most famous apartments are the painted hall, which contains Nelson relics, and the chapel with its fine carvings. Other parts are occupied by the Royal Naval College and the Naval Staff College. The Royal Hospital School has been removed to new buildings at Holbrook, in Suffolk. A house near, formerly owned by Anne of Denmark, is now a Naval Museum.

Behind the hospital is Greenwich Park, now public property, which covers about 200 acres and is beautifully laid out. In it is the Royal Observatory. This was opened in 1676 and here the Astronomer Royal lives and works. Standard time is reckoned from this observatory, which stands on the first meridian—hence Greenwich time.

Greenwich Village is a district of New York. It is frequented by artists, literary men and others of Bohemian tastes.

Greenwood Arthur. English politician.

He studied at the University of Manchester and became a writer and lecturer on economic subjects. He held a post in the University of Leeds before 1917, when he was made Secretary to the Ministry of Reconstruction. Having joined the Labour Party, he became head of its information bureau and in 1922 was elected M.P. for the Nelson and Colne division of Lancashire. In 1924 he was Parliamentary Secretary to the Ministry of Health and in 1929 Minister of Health in the Labour Government. He resigned in Aug., 1931, and lost his seat in the following Oct. In 1932 he was elected for Wakefield.

Greenwood Frederick. English journalist. Born in London, Mar. 25, 1830, he became first editor of *The Queen*, 1861-63 and later was editor of *The Cornhill Magazine*, 1861-68 and *The Pall Mall Gazette*, 1865. When the latter paper changed its politics, 1880, Greenwood resigned and the same year started a new paper, *The St. James's Gazette*. He held strong views as to foreign affairs, and suggested the purchase by Great Britain of the Suez Canal shares (1875). His works include *Margaret Dencil's History*, *The Lover's Liricon* and *Imagination in Dreams*. He died Dec. 14, 1909.

Gregorian Chant Plainsong system of antiphonal psalmody as devised by St. Gregory. Eight groups of chants correspond to the eight modes or tones. They are represented on the piano by the white notes only. The four authentic modes:

No. 1. Dorian	D to D
No. 2. Phrygian	E to E
No. 3. Lydian	F to F
No. 4. Mixolydian	G to G

are paired with a plagal mode lying a perfect 4th lower than each of them. This gives Nos. 2, 4, 6 and 8, named as are their authentic partners plus the prefix hypo.

The chant begins with an intoning note and

continues with a reciting note, which is followed by the mediation, marking the half of the chant, a reciting note and an ending conclude.

Gregory Name of 16 popes. The two most important are Gregory I. and Gregory VII. noticed below. The five who came between these two are of little account. Of the others **Gregory IX.** was pope from 1227-11 and his reign was chiefly occupied by a struggle with Emperor Frederick II. **Gregory X.** was pope from 1271-76; **Gregory XI.**, 1370-78; and **Gregory XII.**, 1406-16, when he abdicated as ordered by the Council of Constance and thus helped to end the Great Schism in the church. **Gregory XIII.**, pope from 1572-85, was the pope who reformed the calendar, called after him the Gregorian Calendar, and celebrated the massacre of St. Bartholomew with a *Te Deum*. **Gregory XIV.** was pope 1590-91 and **Gregory XV.**, 1621-23. **Gregory XVI.**, pope from 1831-16, was known for his opposition to the liberal ideas of that time.

Gregory I. Pope, called the Great. He was born in Rome about 510, a member of a wealthy family, and became a prominent official of the city. In 571 he became a monk and later was one of the seven deacons who looked after the Christians in Rome, and became secretary to the pope, who sent him on an important mission to Constantinople. In 590 he was elected pope, and during his fourteen years of office he did a good deal for the temporal power of the papacy, by improved management of its great estates and in other ways. He was equally successful as the temporal ruler of Rome and as the spiritual ruler of a great part of Christendom, in both cases asserting his rights, but equally zealous in spreading the faith and curing for the unfortunate. His best known actions are the sending of Augustine to England in 596 and the invention of the Gregorian system of chanting. **Gregory** wrote a great deal, and many volumes of his writings have been published. He died, March 12, 604, and was soon afterwards canonised.

Gregory VII. Pope from 1073 to 1085, also known as Hildebrand. Born about 1020, probably at Siena, he was educated in a monastery at Rome and became a monk and chaplain to Pope Gregory VI. Pope Leo IX. made him a cardinal deacon and appointed him to look after the estates of the church. In this capacity he proved himself a man of exceptional ability and he was soon the dominant member of the papal court. In 1054 he declined to become pope, securing the election of Victor II. The next two popes, Nicholas II. and Alexander II. were also his nominees, but there was a good deal of opposition to both, especially to Alexander. However, in the end Hildebrand's determination won through.

In 1073 Hildebrand himself was elected and he took the name of Gregory VII. He reigned for 12 years, perhaps the most thrilling in the long history of the papacy. His two great aims were to reform the church and to assert its authority over the temporal power, represented by the emperor. He fought hard to put down simony and he strongly favoured celibacy for the clergy. Following out his reforming policy, the pope forbade the investiture of clerics by lay rulers, and this brought on his famous quarrel with the Emperor Henry IV., who submitted at Canossa in 1077. The pope's victory lasted for three years, at the end of

which time the quarrel was renewed. Henry took possession of Rome, after a long siege in 1084, and set up a rival pope. Gregory escaped to Monte Cassino, and then went to Salerno, where he died May 25, 1085.

Gregory Augusta, Lady. Irish dramatist. Born Mar. 5, 1852, in 1881 she married Sir William Gregory, an Irish M.P. who died in 1892. Deeply interested in the Irish literary revival, she became a director of the Abbey Theatre, Dublin, about which she wrote *Our Irish Theatre*, 1921. She translated three of Molière's plays for production there, but is better known by her own dramas. These include *The White Cockade*, *The Rising of the Moon*, *The Gaol Gate*, *The Full Moon*, and many others. She died May 22, 1932.

Greiffenhagen Maurice. English artist. Born Dec. 15, 1862, he studied at the Royal Academy Schools, London. In 1906 he was made head of the Life Department at the Glasgow School of Art, but after a time settled in London. In 1916 he was elected A.R.A. and in 1922 R.A. His works include "The Judgment of Paris" in Sydney, and "Dawn" and "Women by a Lake," bought by the Chantry trustees. He died December 26, 1931.

Grenada Island of the West Indies. It belongs to Great Britain, being one of the Windward Islands, and is 86 m. from Trinidad. It covers 133 sq. m. Its mountain range contains several extinct volcanoes, with lakes formed in their craters. St. George's is the capital and chief port. Cocoa, nutmegs, maize, cotton, sugar and other tropical products are grown and exported; rum is another important export. The island is under a governor and a legislative council. It was discovered by Columbus in 1498, settled by the French and became English in 1762. Pop. 66,300.

Grenade Small shell or bomb that is thrown by hand. In its earliest form the grenade was made of brass or earthenware, was filled with gunpowder and pieces of iron, and exploded by means of a fuse. The use of grenades died out about the beginning of the last century, but revived again in a new form in recent years.

A **grenadier** was originally a picked soldier, trained in the use of hand grenades. France allotted four to each company of the Royal Regiment in 1667, and grenadier companies to three others. England followed suit in 1678. The Premier Battalions of the Guards, having appropriated the name, an army order, in 1915, decreed that men trained to use hand grenades would henceforward be called bombers.

Grenadier Guards Regiment of the British Army. It was raised in 1660 and ranks as the first regiment of foot guards, although the Coldstream Guards are older. It forms part of the brigade of guards, and may march through the City of London with fixed bayonets. Their record of service is a fine one, including Quatre Bras and Waterloo. In the Great War the Grenadiers sent four battalions to France, and their total casualties were nearly 12,000. The regiment has now three battalions.

Grenadines Group of small islands in the Caribbean Sea. They lie between St. Vincent and Grenada, and belong to Great Britain. They cover 14 sq. m. Three only, including Carriacou, the largest, are inhabited. They are administered partly from St. Vincent and partly from Grenada. Pop. 8000.

Grenfell **Julian Henry Francis**. English soldier and poet. Born Mar. 30, 1888, the eldest son of Lord Desborough, he was educated at Eton and Balliol College, Oxford. In 1910 he joined the Royal Dragoons, and in the Great War was awarded the D.S.O. Wounded at Ypres on May 3, he died at Bonlogne, May 13, 1915. His verses *Into Battle* were published in *The Times*, and he wrote other poems. He was also a fine boxer and something of a scholar. His brother, Gerald William Grenfell (b. 1890) was killed at Hooge, July 30, 1915.

Grenfell **Sir Wilfred Thomason**. English medical missionary. Born Feb. 28, 1865, and educated at Marlborough and Oxford, he became house surgeon of the London Hospital under Sir Frederick Treves. In 1889 he joined the Royal National Mission for Deep Sea Fishermen, and cruised the North Sea in the first hospital ship. In 1892 he went as medical missionary to Labrador, and established hospitals, missions, homes, etc., there and in Newfoundland. He was attached to the Harvard Surgical Unit in France early in the Great War. In 1927 he was knighted. His works include *The Harvest of the Sea*, 1905, and *A Labrador Doctor*, 1918.

Grenoble City and river port of France. It stands on the Isère, 75 m. from Lyons, in the midst of magnificent mountain scenery. There is a university. The city has some manufactures, including the making of gloves, paper and fancy goods, and there is a trade along the river. It has a broadcasting station (566 M., 2 kW.). Before the French Revolution Grenoble was the chief town of Dauphiné. Pop. (1931) 90,748.

Grenville **George**. English statesman. Born Oct. 14, 1712, he was a younger brother of Richard Grenville, Earl Temple. He was educated at Eton and Oxford, and in 1741 became M.P. for Buckingham. Having held several minor positions in the government, he was made a Secretary of State and First Lord of the Admiralty in 1762. In 1763 he became Prime Minister, a post he retained for two years. His government was responsible for the prosecution of John Wilkes and for the Stamp Act of 1765. He died in London, Nov. 13, 1770. In his early days Grenville was allied politically with Pitt, who was related to the Grenvilles by marriage, but later the two parted.

Grenville's son, **William Wyndham Grenville** (1759-1831) was also a statesman. He entered the House of Commons in 1782, and, having been Speaker in 1789, was made Home Secretary. From 1791 to 1801 he was Foreign Secretary and as such closely associated with his kinsman, William Pitt. In 1806-07 he was premier of a coalition ministry. In 1790 he was made a baron, but the title became extinct when he died at Dropmore, Jan. 12, 1834.

Grenville **Sir Richard**. English sailor. Born about 1541, a member of an old Cornish family, he was M.P. for Cornwall, 1571 and 1584, and sheriff of Cornwall in 1571. In 1591, when a squadron under Sir Thomas Howard was sent to the Azores, to intercept the treasure fleet of Spain, Grenville, as vice-admiral, was second in command. The Spanish fleet received warning, and a fleet of 53 vessels attacked Howard's sixteen off Flores. Half Howard's men being ill of the scurvy, he fled before them, Grenville in his flagship *the Revenge* being somehow separated. Attempting to break through the Spanish line, the valiant

ship fought the entire fleet for 15 hours, but was eventually captured, Grenville dying of his wounds a few hours later, Aug. 31, 1591. The story is told in Tonnyson's *The Revenge*.

Gresham **Sir Thomas**. English merchant and financier. Born in London about 1519, he was educated at Cambridge and then entered Gray's Inn. In 1543 he became a member of the Mercers' Company. Going to the Netherlands, he amassed a large fortune as a merchant and was also financial adviser to the government. He was knighted by Queen Elizabeth in 1559, before becoming ambassador to the Duchess of Parma. He died Nov. 21, 1579.

Gresham built the Royal Exchange in London and left his house in Bishopsgate and a sum of money to the Mercers' Company, to found the Gresham College, in which every year courses of lectures in seven subjects are delivered by seven professors. Rooms in the Royal Exchange were used for the lectures until 1843, then Gresham College was built for this and other educational work.

Gresham's name is associated with the principle, called **Gresham's law**, that good money drives out bad.

Greta River of Cumberland. It flows west into the Derwent near Derwentwater, and is 4 m. long. Greta Hall, which stands on the river, was the home of Southey for forty years. Other Gretas are tributaries of the Lune and Tees.

Gretna Village of Cumberland. It is near Carlisle and has a station on the L.M.S. Rly. Enormous munition works were erected here during the Great War.

Gretna Green Village of Dumfriesshire. It is 9 m. from Carlisle just across the River Sark that divides England from Scotland. Owing to its position, it was a favourite place for runaway marriages, since the law of Scotland was much more lax in this matter than the law of England. The marriages were celebrated in the village smithy by the blacksmith, or in the inn by the innkeeper.

Greuze **Jean Baptiste**. French artist. Born near Mâcon, Aug. 21, 1725, he early showed promise as a painter, and when 30 years of age was elected to the Paris Academy. His paintings are of a sentimental and somewhat conventional character, though the homeliness of his themes and his close study of nature gave them a certain charm and secured him great popularity. He died in poverty, Mar. 21, 1805. Several of his works, such as "A Girl with Doves," are in the Wallace Collection.

Greville **Charles Cavendish Fulke**. English diarist. Born Apr. 2, 1794, he was educated at Eton and Oxford and early became secretary to Earl Bathurst and non-resident secretary of Jamaica. From 1821 to 1859 he was Clerk of the Privy Council. Throughout his official career he kept a diary, and this was published in seven volumes, 1876-87, as *The Greville Memoirs*, a valuable and outspoken contribution to the history of his time. He died Jan. 18, 1865.

Grévy **François Paul Jules**. French statesman. Born at Mont-sous-Vaudrey, Aug. 15, 1807, he studied law in Paris, becoming an advocate in 1837. He was elected deputy to the Constituent Assembly and sat in the Legislative Assembly, 1849-51, when for a time he returned to his legal practice. In 1869 he was elected to the Chamber, and, having

made a reputation as an orator, was chosen President of the National Assembly in 1871, as he was in 1876, 1877 and 1879. In 1879 he was elected President of the Republic and at the end of his seven years of office was again chosen. In 1887 he resigned and on Sept. 9, 1891, he died.

Grey Earl. English title borne since 1806 by the family of Grey. The first holder, Charles Grey, fought with distinction in the Seven Years' War and the American War of Independence, rising to the rank of general. In 1801 he became Baron Grey, and in 1806 Earl Grey and Viscount Howick. He was succeeded, when he died in 1807, by his son, Charles, the statesman.

Charles Grey, born Mar. 10, 1764, was elected M.P. for Northumberland in 1786. Associating himself with Fox, for many years he was an opponent of the policy of Pitt and an advocate of political and social reform. He became First Lord of the Admiralty and then Foreign Secretary in the coalition ministry of 1806-07. From 1807 to 1830 he was leader of the Whigs, then in opposition. In 1830 he became Premier and his ministry was responsible for the great Reform Act of 1832. He resigned in 1834 and died, July 17, 1845.

Henry George Grey (1802-94) his eldest son, succeeded him as 3rd earl. He entered the House of Commons in 1826 and held office in several Whig ministries. From 1846 to 1852 he was Secretary for War and the Colonies. He was succeeded by his nephew, Albert Henry George Grey, 4th earl (1851-1917) who, a great traveller in his early life, was administrator of Rhodesia, 1896-97 and Governor-General of Canada, 1904-11. His son, Charles Robert Grey (b. 1879), succeeded him as 5th earl. The family seat is Howick Hall near Lisbury.

Grey, Lady Jane. Queen of England for nine days. Born at Bradgate Park, Leicester, in Oct., 1537, she was the oldest daughter of Henry Grey, Duke of Suffolk, her mother being a granddaughter of Henry VII. Of remarkable intellectual attainments, she received a thorough education, and when she had barely reached womanhood astounded with her learning the greatest scholars of the day, including Roger Ascham. The Duke of Northumberland, desiring the aggrandisement of his family, married her in May, 1553, to his son, Lord Guildford Dudley, and then sought to alter the succession in her favour. After the death of Edward on July 6, 1553, she was proclaimed queen, but Mary's friends were too strong for her, and on the 19th she was arrested. She was tried, sentenced to death for high treason, and on Feb. 12, 1554, together with her husband, was beheaded on Tower Hill.

Grey Sir George. English official. Born April 12, 1812, he was the son of an officer, and himself entered the army. In 1839 he retired, and in 1841 was made Governor of S. Australia. In 1845 he went as Governor to New Zealand, and there he did a great work. He left it in 1853 to become Governor of Cape Colony, but returned in 1861, and was again Governor until 1867. From 1877 to 1884, Grey, who was knighted in 1848, was Prime Minister of New Zealand. He wrote accounts of two expeditions along the coasts of Australia in which he took part, and books on the early inhabitants of New Zealand. He died in London, Sept. 20, 1898.

Another Sir George Grey was a Whig politician. Born in 1799, a grandson of the 1st Earl

Grey, he was elected M.P. for Devonport in 1832, and sat in Parliament until 1874. Having filled minor positions, he was Home Secretary in 1846 to 1852, 1855-58 and 1861-66. He died, Sept. 9, 1882, his baronetcy passing to his grandson, who later became Viscount Grey of Fallodon (q.v.).

Grey of Fallodon Viscount. English statesman. Born April 25, 1862, Edward Grey was the eldest son of Lieut.-Col. C. H. Grey and a member of the old Northumberland family. He went to Winchester and then to Balliol College, Oxford. While there, in 1882, he became a baronet on the death of his grandfather, Sir George Grey. At the same time he inherited Fallodon Hall and the family estates.

In 1885 Grey was elected M.P. for Berwick-on-Tweed. From 1892-95 he was Under-Secretary for Foreign Affairs, and during the ten years, 1895-1905, he came to the front as one of the leaders of the Liberal party. In 1905 he became Foreign Secretary, and he held that post until 1916. He was responsible for the policy of Great Britain during the fateful years that preceded the Great War, and it was his lot to conduct the negotiations that ended in his country's participation in the struggle. He remained at the Foreign Office until Dec., 1916, when he resigned with Asquith and other Liberals. He was then made a viscount.

Partly owing to falling eyesight Grey took little further part in public life, but occasionally he appeared as a moderate Liberal on the public platform. On his two hobbies, fly-fishing and the observation of bird life, he wrote books, including *The Charm of Birds*, and in 1925 he issued his memoirs, *Twenty-Two Years*. Later he edited *The Fallodon Papers*. His honours include the Order of the Garter and the Chancellorship of the University of Oxford, to which he was elected in 1928. He was twice married, his second wife, formerly the wife of Lord Glenconner, dying in 1928. In early life Grey was amateur tennis champion.

Greyfriars Name given, from the colour of their dress, to the members of the Franciscan order. The most famous house of the order was in Edinburgh, and the name is still borne by two churches there. The monastery of the Greyfriars was founded in 1430 and destroyed in 1547. In 1614 the church called the Greyfriars was built, and in its churchyard the National Covenant was signed in 1638. It contains many memorials, including one to the Scottish martyrs.

Greyhound Breed of dog. A tall, slenderly built, long-limbed hound, it is smooth-haired and in colour uniformly grey or sandy. Being very fleet it is kept for coursing hares by sight. The old English greyhounds, sometimes used for hunting, were heavier than the modern breed. Rough-haired Scotch, Persian, Afghan and Russian breeds exist and Italian greyhounds are miniature pets.

Greyhound Racing Outdoor sport. It is a form of coursing, the chief difference being that mechanical, not real, hares are used. It began in the United States and since about 1926 has become very popular in Great Britain. The hare is worked by electricity, and as soon as it is set in motion the dogs are released by opening a trap door. The sport affords ample opportunity

for betting, and bookmakers attend the meetings, which are usually held in the evenings, and sometimes on Sundays. The totalisator is also used.

The first track was opened in England in 1925. There are now some 50, controlled by the National Greyhound Racing Club.

Greymouth Town and port of New Zealand. It stands on the west side of South Island, at the mouth of the Grey River. It is about 100 m. from Christchurch, which is almost directly on the other side of the island. The two are linked by railway and a line connects Greymouth with Westport. There is a good harbour, and in the district coal is mined.

Greywethers Name given to blocks of sandstone found scattered over parts of Wiltshire, and adjacent districts of southern England. Of hard siliceous composition, they are used for various building purposes. The name is probably derived from their appearance, which resembles that of the sheep called the greywether. A local name for them is sarsen, or, in Cornwall, sarsden stones.

Grieg **Edvard Hagerup**, Norwegian composer. Of Scottish descent, he was born at Bergen, June 15, 1813, and studied at Leipzig and Copenhagen. After imbibing the romanticism of Schumann and Mendelssohn, Grieg studied with Gade and became the friend of Nordraak who encouraged his project of establishing a definite Scandinavian idiom of composition. In 1867 he founded the Music Union at Christiania, being its conductor until 1880. He visited Rome and was on several occasions in England. His best known composition is the music to Ibsen's *Peer Gynt*. He died at Bergen, Sept. 4, 1907.

Griffin Imaginary monster. It is usually depicted as combining an eagle's head, bearing pointed ears, clawed front legs and wings, with a lion's body, and hind legs and tufted tail. It originated in Asia and became a decorative motive in classical architecture. The Griffin, the memorial which was erected to replace Temple Bar, between Fleet Street and the Strand, London, in 1880, was suggested by the heraldic supporters of the city's coat of arms.

Griffith **Arthur**, Irish politician. Born in Dublin, March 31, 1872, he became a printer and journalist. In 1889 he founded *The United Irishman*, a weekly journal which he edited. In 1901 appeared his pamphlet *The Resurrection of Illegality*. He was one of the founders of the Sinn Féin movement, and in 1907 his paper took that name, although later it was changed to *Eire*. He supported the Irish volunteers, but took no part in the Easter Rising of 1916, though he was, nevertheless, interned. Imprisoned again in 1918, on his release he was elected Vice-President of the Irish Republic, and was again imprisoned for a short time. During De Valera's absence in America, 1919-20, he was head of the Republic and had a prominent share in the final settlement of the Irish question in 1921. He was then elected head of the Irish executive, but died suddenly, Aug. 12, 1922.

Griffith **David Llewellyn Wark**, American film producer. Born in Kentucky in 1880, in 1908 he was acting and directing the Biograph Film Company. Later, as an independent producer, he was responsible for *The Birth of a Nation*, *Intolerance*, *Way Down East*, etc. His films always expound some moral or propagandist principle.

Griffon Breed of dog. Used for hunting game birds, it is somewhat taller than a setter and has a rough coat of a grizzled liver colour. The Brussels griffon, or Griffon Bruxellois, is a Belgian toy dog of terrier extraction, introduced into Britain in 1895. It is large headed, black-eyed and deep-chested, with harsh, wiry liver-coloured coat and black-moustached lips. Small sizes have a maximum weight of 5 lb., but there are larger ones weighing up to 10 lb.

Grimaldi **Joseph**, English clown. Born in London, Dec. 18, 1779, he came of a family of clowns and dancers, and began his theatrical career at Drury Lane, when an infant. Afterwards he played at Sadler's Wells and continued to amuse audiences in London and the provinces until 1828. He died May 31, 1837.

Grimm Name of two brothers, German philologists and folklorists. Both were born at Hanau, in Hesse-Cassel, Jakob Ludwig Karl on Jan. 1, 1785, and Wilhelm Karl on Feb. 24, 1786. Both studied law at Marburg, and they remained together all their lives. They obtained posts in the library at Cassel, and Jakob was librarian and lecturer at Göttingen from 1829 to 1837. In 1840 both received professorships at Berlin.

The brothers wrote independent works, but they are best known for that in which they collaborated, *Kinder- und Hausmärchen*, 1812, 1811 and 1822. This was immediately successful and has been translated into many languages, becoming immortalised in English as *Grimm's Fairy Tales*. Jakob Grimm produced a valuable *German Grammar*, 1819; and *German Mythology*, 1835; his *Geschichte der deutschen Sprache*, 1848, was a painstaking and suggestive study of German philology. He died Sept. 20, 1863, and his brother Dec. 16, 1859.

In philology the law that regulates the change of consonants between one language and another is called **Grimm's law**. Thus *d* in English very often becomes *t* in German.

Grimsby County borough and seaport of Lincolnshire. It is 15 m. from Hull and 155 from London, and stands near the mouth of the Humber, being reached by the L.N.E. Rly. Grimsby is the largest fishing port in the world, and its docks have been extended and equipped to deal with the enormous quantity of fish which is landed here and sold in the large fish market. There is also a trade in butter, coal, timber and other commodities. The docks belong to the L.N.E. Rly. and the port includes those at Immingham. Pop. (1931) 92,463.

Grimspound Ancient British stronghold on Dartmoor, Devon. Situated 1½ m. S. of Chagford, it comprises two concentric irregularly oval walls of coursed granite, 3½ ft. apart, which were originally 8 ft. high; there are three entrances and the whole covers 4 acres. Enclosing 24 ruined hut circles, it was a defence for the villagers and their livestock against animal and human foes.

Grindelwald Pleasure resort of Switzerland. It stands in a valley in the Bernese Oberland, 13 m. from Interlaken. The valley is 13 m. long and a little river flows through it. Grindelwald is a popular tourist centre, as near it are the Wetterhorn, Schreckhorn, Eiger and other Alpine peaks, as well as two noted glaciers.

Grinnell Land District of the Arctic regions, part of Canada. It is the eastern part of Ellesmere Island and was discovered in 1854. Coal has been found here, and on it are wolves, foxes and other animals. The name is that of one of its discoverers.

Grinstead East. Market town of Sussex. It is 30 m. from London and is reached by the S. Rly. Here is Sackville College, an almshouse erected by an Earl of Dorset in the 17th century. Pop. (1931) 7900.

West Grinstead is a village 18 m. away. It also has a station on the S. Rly.

Griqualand Two districts, East and West, of Cape Province, S. Africa. Griqualand East is in the north-east of the province, to the south of Natal. Kokstad is the chief town and the area is 6600 sq. m. Griqualand West is on the western side of the Orange Free State, in the centre of the province and north of the Orange River. In it diamonds (first discovered 1867) are found, and Kimberley is the chief town. Griqualand East became British in 1875 and Griqualand West in 1871. The name is that of the Griquas, a race descended from Dutch fathers and native mothers.

Grizzly Largest American bear (*Ursus horribilis*). It is found from Alaska, through the Rocky Mountains, to Mexico and is still common in British Columbia. It has yellowish-brown fur, sometimes cinnamon coloured, and is formidable when attacked or hungry. Bears weighing 1400 lb. are known to have existed.

Groat Old English silver coin of the value of fourpence. Originally issued in the reign of Edward III. It was in circulation until the time of Charles II. In 1836 a silver fourpenny piece was issued, but it was discontinued 20 years later.

Grocer Retail dealer in tea, coffee and other household goods. It meant originally a wholesaler, or a dealer *en gros*. In Great Britain the grocers have a strong trade organisation. They conduct the Institute of Certificated Grocers at 50 Doughty St., London, W.C.1, and a weekly paper, *The Grocer*, is published in their interests. They hold an annual conference.

The Grocers' Company is one of the 12 great livery companies of London. The hall is in Princes St., London, E.C.2, and much of its large income is devoted to educational and charitable purposes. Oundle School is supported by the company, which also supports and maintains a school at Hackney.

Grodno City of Poland. It stands on the Niemen, 160 m. from Warsaw and 95 from Vilna, and is a manufacturing and trading centre. Grodno was taken from Poland by Russia in 1796, and remained Russia's until 1918. Lithuania laid claim, but the Poles secured it in 1923. Pop. 61,600.

Groin In architecture the angle formed by the crossing of two vaults or arches. It is seen in its fullest development in Gothic buildings of the Middle Ages. In churches of this period the groin'd vaulting is one of the most beautiful features of their architecture.

Grolier Jean. French book collector. Born at Lyons in 1479, he was French Ambassador to Milan and Rome, and was appointed treasurer to Francis I. in 1537. He was a great collector of books and an authority on the art of book binding. His library of 3000 volumes was sold ten years after his death in 1565. Some of them are now

in the British Museum, and some in the Bibliothèque Nationale, Paris.

Groningen Town and port of the Netherlands, and capital of the northern province of the same name. There is a university founded in 1614, for which new buildings have been erected. The town has some manufactures and is a printing centre. Its markets are important, and it has some shipping, since small vessels can reach its harbour. During the Great War members of the British force who escaped from Antwerp were interned here. Pop. (1930) 105,005.

Groote Schuur Residence of the Premier of S. Africa. It is about 4 m. from Capetown, its station being Rondebosch. The house was built on the site of an older one by Cecil Rhodes, who lived here. After his death it became national property. There is a memorial to him in the grounds.

Grosbeak Indefinite name of various stout-billed birds. Most of them are of the finch and weaver bird families. Except the hawfinch, sometimes called the common grosbeak, only stragglers reach Britain, e.g., the pine grosbeak and the scarlet grosbeak or rose finch. Virginian grosbeaks, or cardinal birds, are handsome songsters.

Grossmith George. English actor and entertainer. Born Dec. 9, 1847, he was a reporter at Bow Street, London, before he began his career as an entertainer in 1870. In 1877 he first appeared in Gilbert and Sullivan Opera, *The Sorcerer*, and later, at the Savoy, he took leading parts in eight others. In 1889 he returned to his old profession of entertainer. He died March 1, 1912.

With his brother, **Weedon Grossmith** (1853-1919), who made a name both as an actor and an artist, he wrote *The Diary of a Nobody* for *Punch*. His son, **George Grossmith** (born 1874), became an actor and played a large part in the popularising of revues. He was also a theatrical manager.

Grosvenor Name of a family holding three British peerages. A baronetcy was given to a member of the family in 1622, and Sir Richard Grosvenor, 7th baronet, was, in 1761, made Baron Grosvenor; in 1784 he became Earl Grosvenor and Viscount Belgrave. He died in 1802 and was succeeded by his son Robert, who in 1831 became Marquess of Westminster. Hugh Lupus, the 3rd marquess, was created Duke of Westminster in 1874.

In 1857, Lord Robert Grosvenor, a son of the 1st Marquess of Westminster, became Baron Ebury. Lord Richard Grosvenor, son of the 2nd marquess, was, in 1886, made Baron Stalbridge.

The Duke of Westminster owns valuable property in the west end of London, known sometimes as the Grosvenor estate. It includes Grosvenor Square, Grosvenor Street and the neighbourhood. Grosvenor House, long his London residence, has been pulled down and the site is occupied by shops and flats, which are owned by a public company.

Grote George. English historian. Born near Beckenham, Nov. 17, 1794, he was educated at Charterhouse School. When 16 years of age he entered his father's bank, with which he was connected until 1813. He continued his studies, however, reading especially the classics and works on economy and philosophy. In 1832 he was elected M.P. for the city of London, and as a radical he sat

in Parliament until 1841. He was active in establishing London University and was interested in philanthropic and educational work of other kinds. Grote is known, however, as the historian of Greece. His *History of Greece* in 12 volumes was long a standard work for students, and is not yet entirely superseded. He died June, 18, 1871.

Grotius Hugo. Dutch jurist. Born at Delft, April 10, 1583, he studied at Leyden, and practised as a lawyer. His remarkable abilities attracted attention, and he was made Pensionary of Rotterdam and Historiographer of the United Provinces. In 1619, having taken some part in politics, he was put in prison, but in 1620 he escaped to France and lived for some years in Paris. In 1634 he entered the Swedish service, and was sent to Paris as ambassador. He died Aug. 29, 1645.

Grotius is known as the author of *De Jure Belli et Pacis* (Concerning the Law of War and Peace), a masterly work, published in 1625, which laid the foundations of international law. In 1915 a Grotius Society was founded in London for the study of international law.

Grotto Underground chamber, either natural, artificially enlarged, or entirely artificial. Among natural grottoes is the picturesque Blue Grotto on the island of Capri, which has been hollowed out by the sea and extends 175 ft. Near Naples is the Grotto del Cane, remarkable for its vapours, and in the Greek island of Antiparos, one of the Cyclades, there is a grotto with a fine stalactite formation.

Grouchy Emmanuel. French soldier. Born in Paris, Sept. 5, 1766, he entered the army. He helped to suppress the rising in La Vendée in 1793, and took part in the expedition to Ireland in 1798. He served with distinction in Italy and against Austria. He went with Napoleon to Russia and was with him during the retreat from Moscow, and at the Battle of Leipzig. He led the beaten French armies back to Paris after Waterloo, but on the return of the Bourbons escaped to the United States. In 1819 he returned to France, and in 1830 regained his rank as a marshal. He died May 29, 1847.

Ground-hog See WOODCHUCK.

Ground-Nut Fruit of an annual leguminous herb (*Arachis hypogaea*). A native of S. America, it is now cultivated in most warm countries for its valuable oil. The flower stalk twists downward and buries the immature fruits in the soil, where they ripen, becoming wrinkled pods which contain one or two seeds. These are called monkey or pea nuts in Britain, and pea nuts in the United States.

Ground Rent Name given to the rent paid for the ground on which a house or other building stands, as distinct from the rent paid for the building itself. (Ground rent is paid for all leasehold land, and the owner who receives it is called the ground landlord. Freehold land does not pay ground rent.)

Groundsel Common herbaceous plant (order Compositae). Found in all parts of the British Isles, it has deeply cut leaves and small yellow flowers succeeded by a white fluffy seed head. A sprig of groundsel in the cage is greatly appreciated by canaries and other cage birds.

Ground-squirrel See CHIPMUNK.

Group Captain Rank in the Royal Air Force. It is below air commodore and above wing commander. It corresponds to that of colonel in the army and captain in the navy.

Grouse Name of a family of game birds. In Great Britain it is used for the red grouse or moor fowl (*Lagopus scoticus*), a form of the willow grouse. The grouse is preserved for shooting, and in Scotland and the north of England large moorland areas are devoted to it. The season lasts from Aug. 12 to Dec. 10. The bird is a table delicacy and weighs from 20 to 30 oz. The hen bird lays from 7 to 10 eggs. Other species of grouse are the wood grouse, or capercaillie, the snow grouse, or ptarmigan, the spruce or Canadian grouse and the sage grouse. The sand grouse belongs to another family.

Groyne Low wall, built on the seashore and running seaward to check the lateral drift of sand and shingle. It is made of masonry, concrete or heavy timber bolted to piles. Sand and shingle tend to accumulate on one side of the groyne, and so raise the general level of the foreshore, thus forming a barrier against the encroachment of the sea. Groynes are also constructed on rivers to regulate the flow of water and to prevent erosion of the banks.

Grub Street Name of an old London street. It ran from Fore Street to Chiswell Street and since 1830 has been called Milton Street. Here, in the 18th century, literary hacks of the poorest kind are said to have made their homes. Since that time the term has been used to denote writers who eke out a precarious living.

Grundy Mrs. Personification, in Great Britain, of propriety, respectability and convention. "What would Mrs. Grundy say?" was the frequent remark of Dame Ashfield, a character in *Speed the Plough*, a play written by Thomas Morton in 1798. It became a catch word and still persists.

Gruyère District of Switzerland. It is in the canton of Fribourg, around the little town of Gruyères. It gives its name to a kind of cheese made here.

Guaco Name of a plant of the order *Eupatoriaceae*. It grows in S. America, where it is believed that any one who eats it cannot be harmed by snake bite.

Guadalajara City of Mexico. It is 280 m. from Mexico City and is connected by railway with the capital and the coast. The chief building is the cathedral, an enormous and magnificent structure, dating from the early 17th century. There is a university. The city is a prosperous manufacturing and trading centre. Pop. 143,400.

An older Guadalajara is a town of Spain. 33 m. from Madrid.

Guadalquivir River of Spain. It rises in the south of the country, and flows, mainly in a westerly direction, to the Atlantic Ocean, which it enters about 20 m. north of Cadiz. It is navigable as far as Seville, while barges can reach Cordova. Its length is 370 miles.

Guadeloupe Two islands of the W. Indies belonging to France. Called Grande Terre and Basse Terre, they form part of the Lesser Antilles and lie between Antigua and Dominica, being divided by a narrow channel. The two cover 522 sq. m.,

but with their dependencies, five smaller islands, the total is 888 sq. m. Coffee, sugar, bananas, cocoa and other tropical products are exported, as is rum. Basse Terre is the capital, but Pointe-à-Pitre is the chief port and much the largest place. The affairs are managed by a governor and a council. Pop. 243,000.

Guaiacum See LIGNUM VITAE.

Guam Island of the Pacific Ocean. It belongs to the United States and is the largest of the Marianas Islands. It is 32 m. long and covers 206 sq. m. Agaña is the capital and Pita the chief port. Coconuts, copra, sugar and other tropical products grow, and there are large forest areas. Guam was taken from Spain in 1898. Pop. 13,300.

Guanaco Animal found in S. America. It is really a wild llama and lives in large herds in the mountains. It is about 4 ft. high at the shoulder.

Guano Accumulated excrement of sea-fowl. Deposits 50 or 60 ft. thick, found on islands of Peru, have been utilised for manure since about 1841. It owes its value to its content of ammonia and phosphorus. The deposits are now much depleted, but have been supplemented by others in W. Africa.

Guarantee Promise or undertaking to make good any default by another person. An overdraft at a bank is often guaranteed. In such a case the person guaranteeing it will make good any loss the bank may sustain through the failure of the borrower. Similarly, debts owing to individuals and firms are sometimes guaranteed.

Sometimes a guarantee is required from a person who is appointed to a position of trust, a cashier for instance. To give such, guarantee associations exist. The employee, or employer, makes an annual or other payment to such a society which, in return, will make good any loss the employer may suffer through the employee's misdeeds.

Guardian Person who looks after another, usually a minor or a person of weak intelligence. A child's natural guardian is the father or mother, but when they are dead one or two guardians are usually appointed by will. The powers of the guardian are very much the same as those of the parent. Sometimes, when disputes arise, a guardian is appointed by the Court of Chancery, and to this court a guardian can appeal if in a serious difficulty with his ward.

Another kind of guardian was the person elected in England and Wales to look after the administration of the Poor Law. In each union of parishes there was a Board of Guardians. They were abolished in 1929 and their duties transferred to Public Assistance Committees appointed by the county and county borough councils.

Guards Name given to military units with special physical and other qualifications. The first guards were the picked soldiers who were selected for the honourable duty of guarding the person of the king or leader. The Roman emperor had the Praetorian Guard and the Kings of France had regiments of guards. Napoleon had his old and his young guard, and there were guards in other armies, notably the Prussian.

In England, apart from the Yeomen of the Guard, guards first appeared in the time of Charles II. Regiments of them were then formed, and these, soon divided into horse and foot, are the ancestors of the guards of to-day.

There are two regiments of horse guards in the British Army, the Life Guards and the Royal Horse Guards; they form the sovereign's escort on ceremonial occasions. Of foot guards there are five regiments, Grenadiers, Coldstream, Scots, Irish and Welsh. Together they form the brigade of guards, with a depot at Caterham, Surrey.

Guatemala Republic of Central America. It lies to the south-west of Mexico, and touches both the Atlantic and the Pacific Oceans, although it has only a short coastline on the former. Much of the area is mountainous and there are some volcanoes, whilst earthquakes are frequent. The area is 48,350 sq. m. Guatemala is the capital. Other places are Quetzaltenango, Cobán and Zacapa. The chief ports are Puerto Barrios and Livingston on the Atlantic; and San José and Champerico on the Pacific. The chief products are coffee and sugar, bananas and other tropical plants and fruits. From here the United States gets most of its chicle from which chewing gum is made. There are considerable forests, especially of mahogany and dyewoods, rich deposits of minerals, though little is mined.

Guatemala is governed by a president elected for six years, a national assembly, elected by universal suffrage, for four years, and a council of state. The people are chiefly Roman Catholics. Military service is compulsory. There is a central bank, and the unit of currency is the quetzal equal to the American dollar. The population is about 2,000,000, of whom over half are Indians. In the land are many remains of Maya civilisation.

Guatemala was a Spanish possession for about 300 years before 1821 when it became free. From 1821 to 1847 it was part of the confederation of Central America; it then became an independent republic. Early in the 20th century the United States interfered to put down civil war, which had been raging for some years.

Guatemala City of Central America, the largest and most important capital of the republic of the same name. It is 80 m. from San José, its port on the Pacific, and is also connected by railway with the Gulf of Honduras on the Atlantic. There have been four cities of this name, three being destroyed by earthquakes, the third in Jan., 1918. The new city is laid out on spacious lines about 12 m. south of the old site. There are some manufactures and a considerable trade. Pop. 116,000.

Guava Small tree that grows in the W. Indies. It bears white flowers and the fruit, shaped somewhat like a pear, is edible. It has an acid taste, but is sweeter than the lemon. It is made into jelly and into a kind of cheese.

Guayaquil City and seaport of Ecuador. It stands on the estuary of the River Guayas and is 150 m. from Quito, the capital of the republic. The industries are shipping, for which there is a good harbour, and a number of manufactures. It is the terminus of the railway line to Quito. Pop. 100,000.

The Gulf of Guayaquil is an opening of the Pacific Ocean. It is 100 m. wide at the mouth and contains the Island of Puna.

Gudgeon Genus of small fresh water fish (*Gobio fluviatilis*). Common throughout Europe, it is found in rivers and streams of the British Isles. The angles of the mouth have barbels like the carp, to which

It is related. The flesh has a delicate flavour. It is very easily caught by anglers, and probably from this fact the word gudgeon is applied to any person easily taken in or cheated.

Guedalla Philip. British author. Born March 12, 1889, he was educated at Rugby and Balliol College, Oxford, where he was President of the Union. He became a barrister and was legal adviser to certain government departments during the Great War. He won a reputation by his historical writings, notably the *Partition of Europe*, 1715-1815, 1914, and *The Second Empire*, 1922, and increased it by his sketches and essays, such as those in the volumes, *Supers and Supermen*, 1920, and *A Gallery*, 1924, and by his biography of Lord Palmerston, 1926. In 1931 his life of the Duke of Wellington appeared.

Guelder Rose (*Viburnum opulus*). Small tree of the honeysuckle order. A native of Britain, it is distributed in temperate and colder northern regions. Its roundish clusters of small creamy flowers are ringed by larger white sterile corollas, and are succeeded by scarlet fruits. It grows to a height of 7 or 8 ft. A cultivated variety, with all flowers sterile, is called the snowball tree.

Guelph City of Ontario, Canada. It is 46 m. from Toronto, on the C.N.R. and C.P.R. There are some manufactures and a trade in agricultural produce. Here is the Ontario Agricultural College. Pop. 18,300.

Guelph Family. See WINDSOR.

Guernsey One of the Channel Islands. It is 9 m. long and covers 24½ sq. m. being the second largest of the group. St. Peter Port is the capital; St. Sampson's is next in size, the others being villages only. There are some old churches and manor houses in the island, as well as prehistoric remains. The chief industry is market gardening, fruit, flowers, and vegetables being largely grown. Its breed of cattle is famous and fishing is carried on. Many persons earn a living by catering for the numerous visitors. There is a regular service of steamers from Southampton and Weymouth.

The island has its own government under the lieutenant-governor, and bailiffs, and for this purpose includes Herm and Sark. The royal court is the court of justice, and the legislature is called the States. It consists of both elected and official members. Guernsey is in the diocese of Winchester. Pop. 38,315.

Guerilla Spanish word meaning a little warfare. Guerilla warfare consists in attacks upon a regular army by bands of irregular troops, usually the inhabitants of an invaded country. There was a good deal of guerilla warfare when the English troops were in the Spanish Peninsula between 1808-1812. The Boers resorted to guerilla warfare in 1901-02, and in the 20th century the French and Spanish forces in Morocco suffered a good deal from it.

Guesclin Bertrand du. Constable of France. Born in Brittany in 1320, he made a name for himself by his exploits in fighting the English in Brittany. In 1364 he defeated the King of Navarre's army at Cocherel, and four months later he was taken prisoner by the English at Auray. On being set free he took part in the war against Pedro the Cruel in Spain, and in 1367, at the battle at

Navarrete, he was again taken prisoner by the Black Prince. He captured Pedro in 1369, however, and in 1370 was made constable of France by Charles V., later recovering much territory from the English. He died July 13, 1380.

Guest Sir Josiah John. Welsh ironmaster. Born Feb. 2, 1785, at Dowlais, Glamorganshire, he was the grandson of John Guest, founder of the Dowlais Iron Works. Of these works he became manager in 1815 and made them the largest of their kind in Great Britain. He was M.P. for Hinton, 1826-31 and for Merthyr Tydvil, 1832-52, and was made a baronet in 1838. He died Nov. 26, 1852. His eldest son was made Baron Wimborne, and one of his grandsons, Frederick Edward Guest (b. 1875), is a soldier and politician. The Dowlais Iron Works now belong to the firm of Guest, Keen and Nettlefolds.

Sir Josiah Guest married Lady Charlotte, daughter of the Earl of Lindsey. She published the collection of Welsh tales called *The Mabonogion*. She married a second time, and died Jan. 15, 1895.

Guiana District in the north-east of S. America. It is divided into three portions, belonging to Great Britain, France and the Netherlands. To the south is a district belonging to Brazil sometimes called Brazilian Guiana. Its area is about 175,000 sq. m.

Guiana British. British crown colony. It is on the north coast of the continent and covers 89,500 sq. m., its neighbours being Venezuela, Brazil and Dutch Guiana. It is largely forest, only a small portion of the soil being cultivated. Georgetown is the capital. The three rivers are the Berbice, Essequibo and Demerara. Sugar, rice and other tropical products are grown, and the exports include timber and balata. The colony is under a governor and an executive council; since 1928 there has been a legislative council. English law prevails. English and American coins circulate. Having been a Dutch possession for many years, this part of Guiana was taken by Great Britain in 1796 and ceded to her in 1814. Pop. 308,500.

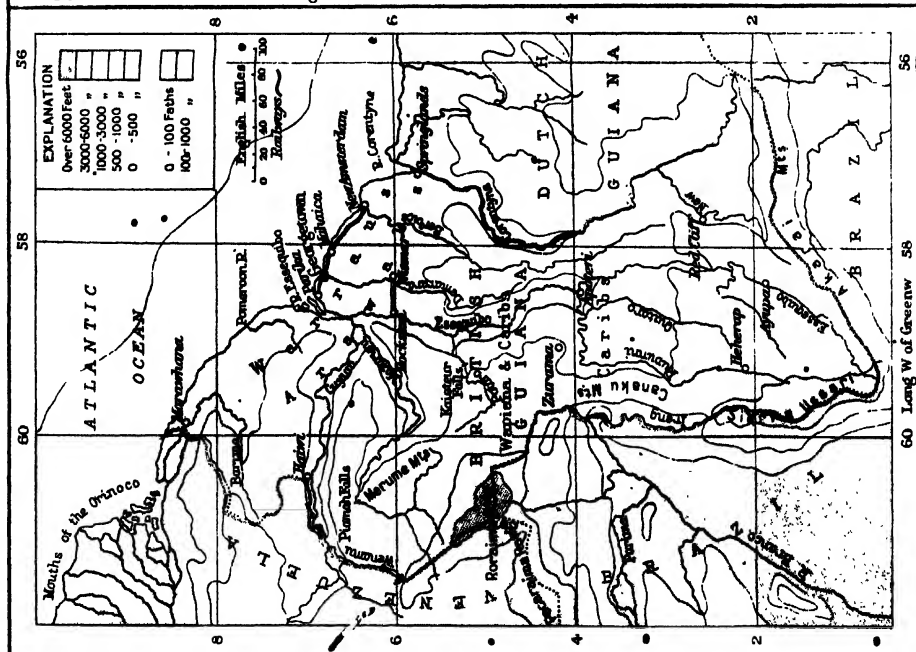
Guiana Dutch. Colony of the Netherlands. It is on the north coast of South America between British and French Guiana, with Brazil to the south. It covers 54,300 sq. m. and is known also as Surinam. Paramaribo is the capital. Pop. (1930) 153,306.

Guiana French. French colony. It lies on the north coast with Dutch Guiana on the west and Brazil to the east and south. At Maroni there is a penal settlement. Sugar, rice and other tropical products are grown and there are immense areas covered with timber. The colony is under a governor and a council. It sends a deputy to the chamber in Paris. Cayenne is the capital. The area is 34,740 sq. m. Pop. (1926) 47,311.

Guides Corps of. Corps in the Indian Army. It was first raised in 1846 for service on the frontiers by Sir Henry Lawrence, and was called the Queen's Own Corps of Guides. The corps includes both cavalry and infantry, and its headquarters are at Mardan. The guides have a fine record of service, which is recorded in *The Story of the Guides*, by Sir G. J. Younghusband.

An earlier corps was a force in the French Army in the time of Napoleon.

Guienne Name of one of the old provinces of France. It was in the south-

[illegible]

west of the country and was at first part of Aquitaine. It soon became a separate province with Bordeaux as its capital and from 1154 to 1451 was an English possession. After its recovery by France it was united with Gascony.

Guilbert Yvette. French lyric artiste. Born in Paris in 1869, she worked for a dressmaker and on a newspaper. In 1893 she appeared on the stage in Paris, and was for many years the chief French actress in her own line. She appeared in London and other capitals, and passed some time in the United States. She has written two novels, volumes of autobiography and a book on how to sing a song, which has been translated into English. In private life she is the wife of Dr. M. Schiller.

Guild Association of men in a common employment or cause. The word means a payment, and comes from the Anglo-Saxon *geld*. The members subscribed to the guild, the money being used for the assistance of the poorer brethren, also for feasts and Masses for the dead. The earliest guilds appeared in the 12th century, and in a short time, as trade and industry grew, they became very powerful. In some cases they secured a charter, and became the council or governing body of the town; this accounts for the use of the word guildhall for a town hall.

Other guilds remained craft guilds, or associations of workers in the same trade. These controlled the trade, regulated the supply of apprentices and acted very much as modern trade unions do. The guilds began to decay about the 16th century, and disappeared with the coming of the industrial revolution. In London, however, the guilds remain as the city livery companies, of which there are 77, although their original functions have ceased. In the 19th century the word was revived for a voluntary association of workers and also for a religious association. Guilds were established, for instance, in the building trade.

Guildford City and market town of Surrey. It is 29 m. from London and is reached by two branches of the S. Ry. The Wey flows past the town. There are remains of the castle, including the keep and the gatehouse in which is a museum. Abbot's Hospital, an almshouse, founded by George Abbot, Archbishop of Canterbury, is also worthy of mention. In 1928 Guildford was made the seat of a bishop and a new cathedral has been planned. There is an agricultural trade; flour mills and breweries are among the chief industries. The town has extensive caves which have been lit and opened to the public. Pop. 30,800.

A small town of Western Australia is called Guildford. It is 9 m. from Perth. Pop. 2500.

Guildhall Hall erected by a mediaeval guild to house its meetings. As in many towns the guilds and the governing body of the town were identical, guildhalls became the headquarters of the municipal corporations, and this word is still used for some of them. Of existing guildhalls the finest is the one in London, the headquarters of the city corporation. It is at the end of King Street, E.C., and was built in the 15th century. It was damaged in the Great Fire, since when much restoration work has been done. A thorough restoration was carried out in 1864. The chief room is the Great Hall, in which the city banquets are held. Connected with the Guildhall is a library and reading-room, an art gallery and a museum. Additional buildings for the work of the corporation, including a court

room, were erected in the 20th century. The Guildhall School of Music is in John Carpenter Street, London, E.C. 4.

There are guildhalls in Exeter, York, Rochester and other cities and towns, and some modern buildings, the one at Nottingham, for instance, have been given this name.

Guild Socialism School of Socialist thought which became prominent after 1910 in Great Britain. Its main idea is one of self-government in industry and the organisation of the economic life of a community on a functional basis. In 1915 the National Guilds League was formed by G. D. H. Cole and others, and in the course of the war the shops' stewards movement was begun, and the workers gained more control. After the war Guild Socialism spread, and the National Building Guild executed many important housing contracts. The National Guilds League is now dissolved, but some of its ideas have become embodied in the Socialist scheme, notably the belief that power with responsibility should be as widely diffused as possible throughout the mass of the people.

Guillemot Genus of long-billed, short-tailed diving birds (*Uria*) of the auk family. They are abundant on rocky British coasts in the breeding season, being there represented by the common *C. frigate*, and the bridled and ringed guillemot. Both lay eggs on the cliffs. The birds are found also in the northern parts of Europe.

Guillotine Instrument for decapitating criminals. It was adopted in France during the French Revolution and was named after Ignace Guillotin, a physician who recommended its use to the Assembly in 1789. It consists of an upright frame in which is suspended a heavy triangular blade which, when released by a cord, falls upon the neck of the victim.

The word is applied also to various types of machine used for cutting paper and cardboard.

Guinea English gold coin. It was first minted in 1663 from gold from the Guinea coast and was then worth 20s. In 1717 its value was fixed at 21s. Coins for five and two guineas were minted; and half and quarter guineas were issued. In 1817 the minting of the guinea ceased, but professional fees are still usually paid in guineas.

Guinea Name given in the 15th century to much of W. Africa. The Guinea coast lies between the Senegal River and Cape Negro, that is, along the coast of the great Gulf of Guinea.

The Gulf of Guinea is part of the Atlantic on the west coast of Africa. In it are a number of bays including the Bights of Benin and Biafra.

Guinea French. French colony in W. Africa. It is situated between Sierra Leone and Portuguese Guinea, its remaining boundaries being other French possessions, and has a coast line on the Atlantic Ocean. It covers 95,200 sq. m. Konakri is the capital and chief seaport. Rubber, palm oil, rice, cotton, bananas and coffee are the chief products. Many cattle, sheep and goats are kept. The colony has a railway line from Konakri to the Niger, and some good roads. Pop. 2,185,700.

Guinea Portuguese. Portuguese colony in W. Africa. It lies between Senegal and other territories belonging to France, with a coastline on the Atlantic Ocean. Its area is 22,000 sq. m. It includes the archipelago of

GUINEA

590

GUIZOT

Bijagoz and the island of Bolamo. Bolamo, on the island, is the capital, and Bissau is the chief port. The colony exports rubber, ivory, oil and hides. Pop. 350,000.

Guinea Spanish. (colony of Spain in W. Africa. It consists of Rio Muni on the mainland and the islands of Fernando Po, Annobon, Corisco, and Great and Little Elobey. The capital is Santa Isabel (pop. 8345) on Fernando Po. There is very little export trade. The area is 10,036 sq. m. Pop. 113,300.

Guinea Fowl Game bird (*Numida meleagris*). It has a short bill, a red wattle and a fleshy casque. The Portuguese brought it from Africa to Europe in the 16th century. It lives in large flocks in Africa and parts of Europe. The bird is used for the table and its eggs are eaten. It was a delicacy to the Greeks and Romans.

Guinea Pig Small domesticated rodent. It is a descendant of the cavy of Peru, and was introduced from Guiana into Europe in the 16th century. There are many varieties. The animals, which are very prolific, are kept as pets and are much used by scientists for experiments.

Guinevere Wife of King Arthur. According to the story as told in the *'Morte d'Arthur'*, she was a daughter of the King of Camelot. She married Arthur, but was unfaithful to him and accepted the love of Lancelot. This led to the break up of Arthur's court and the death of the king. Guinevere then went into a nunnery at Amesbury where she died. In other versions of the story the queen's lover was Modred.

Guinness Name of an Irish family of brewers. Arthur Guinness, who owned a brewery at Leixlip in the 18th century transferred it to Dublin, where it became famous for its stout known as porter. His grandson, Benjamin Lee Guinness (1798-1868), greatly enlarged the business, which in 1886 became a limited company. He was made a baronet in 1867. His eldest son, Sir Arthur Edward Guinness, was, in 1880, created Baron Ardilaun. He died in 1915 without sons. Another son, Edward Cecil Guinness, was made Earl of Iveagh in 1919.

Guisborough Urban district and market town of Yorkshire (N.R.). It is 9 m. from Middlesbrough, with a station on the L.N.E. Rly. The industries are connected with the iron ore deposits near. The town has ruins of a priory. Pop. (1931) 6006.

Guiscard Robert. Norman soldier. Born in Normandy about 1020, he was one of the many sons of Tancred of Hauteville, some of whom had captured Apulia from the Greeks. Following his elder brothers to Italy about 1046, in 1057 he succeeded as Count of Apulia, being recognised by the Pope as duke. Invading Greece, he won the Battle of Durazzo in 1081, then, returning to Italy to the aid of Pope Gregory VII., he drove the emperor, Henry IV., from the country. He died in July, 1085.

Guise Town of France. It is on the Oise, 30 m. from Laon and is a manufacturing centre. It is chiefly famous, however, for giving its name to a family that played a large part in the affairs of France. The chief building is the castle. Pop. 8200.

Early in the Great War Guise was occupied by the Germans, and on Aug. 29-30, 1914, there was a battle near here between the

French and the Germans. The French 5th Army, led by Lanrezac, stopped in its retreat and turned on the pursuing Germans, who were driven back across the Oise, but the arrival of reinforcements to them, and the failure of support to the French, turned the tide, and on the 30th, Lanrezac broke off the engagement and continued his retreat. In the autumn of 1918 the Germans were driven from Guise.

Guise Famous French family. The countship of Guise was held by a junior branch of the ruling family of Lorraine. Claude (1496-1550), second son of Rene II., Duke of Lorraine, inherited it and the Duchy of Aumale in 1508, and in 1513 married Antoinette de Bourbon, a member of the royal family. He fought with distinction in several campaigns, and in 1526 became Governor of Champagne and Duke of Guise.

The 2nd duke was Francois (1519-63) who, after a distinguished career as a soldier, became, under Francis II., the virtual ruler of France. His brother, Charles (1524-74), Archbishop of Rheims and a cardinal, shared his brother's power.

Henri, the 3rd duke (1550-88), was, like his father, a soldier, and played a conspicuous part in the massacre of St. Bartholomew, 1572. He conspired against Henry III., who had him murdered Dec. 25, 1588.

These dukes and their relatives were the Guises who were so prominent in French history in the 16th century. The later dukes were less important. Henri, the 5th duke, was Archbishop of Rheims before he succeeded to the title. The last duke was Francois who died in 1675. A member of the family, Mary, married James V. of Scotland, and was the mother of Mary, Queen of Scots.

Guiseley Urban district of Yorkshire (W.R.). It is 2 m. from Otley, on the L.M.S. Rly., and the woollen industry is the main occupation of the inhabitants. Pop. (1931) 5607.

Guitar Musical instrument with a long neck and fretted fingerboard. Its music is written an octave higher than it is sounded and on the treble staff. The guitar is Spanish, and possibly a descendant of a bowed instrument.

Guitry Lucien Germain. French actor. Born in Paris in 1860, he first appeared on the stage in *La Dame aux Camélias*, 1878. Then, after some years in St. Petersburg, he returned to Paris where he was a producer at the Comédie Française and manager of the Renaissance Theatre. He was the foremost French actor of his time. His wife was the actress Yvonne Printemps. He died June 1, 1925.

His son Sacha was born at St. Petersburg, Feb. 21, 1885, and made a name both as actor and as dramatist. Among his successful plays are *Le Page*, *Nono*, *La Clef*, *Deburau*, *Jacqueline* and *Mozart*.

Guizot François Pierre Guillaume. French scholar and politician. Born at Nîmes, Oct. 4, 1787, he was educated, being a Huguenot, in Geneva. Later he studied law in Paris and began to write. In 1812 he was made Professor of Modern History at the university, and in 1814 he entered the public service as Secretary of the Interior. In 1830 he entered the Chamber of Deputies, and was made a minister. At this time he did a great work for education, establishing schools all over the country. In 1840 Guizot was sent as Ambassador to London, but he soon returned

to France as Foreign Minister and then Prime Minister to Louis Philippe. His conduct of affairs, both at home and abroad, was far from successful and very unlike the liberal ideas he had advocated in his early days. In 1848 he shared his master's fate and escaped to England. He returned in 1849 and gave his concluding years to writing. He died Sept. 12, 1874.

Guizot's writings are chiefly historical and some deal with the history of England, of which country he was a great admirer. His *History of Civilisation in Europe*, long a classic, is perhaps the best.

Gujarat Town of India. It is in the Punjab, 75 m. from Lahore and is the capital of Gujarat district. It is also a manufacturing town. Here, on Feb. 21, 1819, Lord Gough defeated an army of Sikhs, 60,000 strong. The victory led to the capture of Gujarat, then one of their fortresses, and the surrender of the Punjab.

Gules One of the seven heraldic colours. It means red and is shown on heraldic drawings by vertical lines drawn closely together.

Gulf Stream Oceanic current in the North Atlantic. A warm north current, driven by the N.E. trade winds, divides at the W. Indies, one part passing through the Caribbean Sea and the Gulf of Mexico, the other skirting the N.E. shores of the islands. Near Florida, these currents meet and flow N.E. as the Gulf Stream, at first 30 m. wide and with a speed of 4 knots. It gradually becomes shallower and cooler, and where it encounters the prevailing west winds of the N. Atlantic, spreads out into the Gulf Stream drift which reaches Great Britain and W. Europe, where, still warmer than the surrounding water, it raises the temperature of W. Europe considerably.

Gulfweed Coarse, olive-brown sea-weed of the bladderwrack family. It grows in the Gulf of Mexico and is carried northwards by the Gulf Stream, sometimes reaching British waters and even Malta. It collects in the Atlantic, in what is known as the Sargasso Sea, where Columbus saw it in 1492, and covers enormous areas. Its branches bear stalked berry-like air bladders which keep it afloat.

Gull Family of web-footed sea birds, *Larinae*. The upper bill tends down over the lower; the tail is usually squared. They are white or grey in colour and are strong swimmers and powerful and swift in flight. They move in flocks and their nests are usually in cliffs. Their eggs are edible. Of regular British residents the sea-mew (*L. canus*), misnamed the common gull, is frequently seen inland. The bird Londoners see from the Thames bridges in winter is the black-headed gull (*L. ridibundus*); the one familiar to visitors on the south coast is the herring gull (*L. argentatus*).

Gullane Watering place of East Lothian, or Haddingtonshire. It stands on Gullane Bay, part of the Firth of Forth, and is 20 m. from Edinburgh, on the L.N.E. Rly. Gullane figures in R. L. Stevenson's *Catriona*. Pop. 1440.

Gum Name of various trees. Chiefly found in Australia, they grow to an enormous height with a corresponding girth, and specimens over 500 ft. high and 80 ft. in circumference have been known. The timber and the bark are both valuable; they also produce a resinous juice. The blue gum tree,

which grows in Europe, produces a powerful antiseptic oil. Gum trees also grow in N. America, species being the sweet gum, cotton gum and black gum.

Gum Substance exuding from certain plants and hardening on exposure to the air. It is a tasteless, odourless, amorphous carbohydrate, yielding an adhesive liquid, and is either soluble in water, as gum arabic, swelling up and forming a mucilage, as gum tragacanth, or partly soluble, partly insoluble, as cherry gum. The basic ingredient of chewing gum is chicle gum, obtained from a tropical American tree. British gum, used on postage stamps, is dextrine prepared artificially by roasting starch. Gum resins are vegetable juices combining gum, soluble in water, and resin, soluble in alcohol. When powdered they form emulsions in water. e.g., ammoniacum and myrrh.

Gum Fleishy tissue, covered by mucous membrane, connected with the membrane enveloping the jaw bones. It forms a raised collar round the base of each tooth crown. Decay or neglected teeth may cause inflammation; abscesses, resulting from carious teeth or a bill, may break through, and form gumboils. Should the abscess produce pus in the socket between tooth and gum its discharge is called pyorrhoea.

Gumbinnen Town of East Prussia, Germany. It is an industrial town, 65 m. by rail from Königsberg, and stands at the junction of two little rivers, the Pissa and the Komana. Pop. 19,500.

Near Gumbinnen, on Aug. 20, 1914, a large Russian army, having advanced into East Prussia, met a smaller German force which had retreated before it. The Germans made a good fight, holding their entrenched positions throughout the day, but in the end they were compelled to retreat to Königsberg.

Gun General term for various kinds of firearms. It includes all varieties from the sporting gun and rifle to the heavy cannon of artillery and naval ordnance. The sporting guns are all breechloaders, and most are double barrelled with a smooth bore of varied dimensions. In artillery and naval ordnance guns vary greatly in size, calibre and character, from the field and machine gun to the long range and heavy cannon of warships.

According to the Firearms Act of 1920, no person is allowed to possess, use or carry any firearms unless a licence has been granted by the police; and further, no sale of firearms by a registered dealer may be made unless a licence is produced. The licence costs 10s. a year. In addition every person who possesses a gun, with some few exceptions, must take out a certificate which costs 5s. for the first year, and 2s. 6d. a year afterwards. It is renewable every three years. See **ARTILLERY**.

The Gunmakers' Company is one of the smallest livery companies of the City of London.

Gunboat Small type of vessel carrying heavy guns. From its light draught, it is intended for operations in shallow coastal waters or rivers. Gunboats were formerly of value for patrolling the large rivers of China and Africa, but they have been superseded by larger and more efficient craft. In the Great War a number of river or coast service monitors, originally intended for Brazil, were used for operations in Mesopotamia, and were officially classed as gunboats.

Guncotton Explosive compound, also known as pyroxylin or nitrocellulose. It consists of highly nitrated cellulose prepared from cotton waste, which is soaked in a mixture of sulphuric and nitric acids diluted with about 8 per cent. of water, and afterwards washed and dried. It is used with nitroglycerine in making smokeless powders and cordite, also in blasting explosives. Guncotton has the advantage over gunpowder in its smokeless combustion, rapidity of action and resistance to moisture.

Gunmetal Bronze alloy. Consisting typically of 90 per cent. of copper and 10 per cent. of tin, it thus approximates to the composition of ancient bronze. It was used formerly for making cannon, hence the name, and is employed now for castings of bearings and other parts of machinery, bolts and fittings, and some kinds of pumps. Usually the composition of modern gun-metal averages about 86 per cent. of copper, 10 per cent. of tin and 4 per cent. of zinc, the latter being sometimes replaced by lead for bearings.

Gunnersbury District of Middlesex. It is 13 m. from London, on the L.M.S. and District Rlys. Gunnersbury House was the residence of Amelia, daughter of George II. Later the estate, on which a new house was built, became the property of the Rothschild family. After the Great War it was bought by the councils of Acton and Ealing, and made into a public park.

Gunpowder Oldest known explosive. It consists of a mixture of saltpetre, charcoal and sulphur, in varying proportions, according to the purpose for which it is required. For firearms it has been largely superseded by smokeless powders, but it is still used for blasting purposes and in some kinds of sporting cartridges. The charcoal used in making gunpowder is obtained from dogwood, alder or willow, but in Germany coke from lignite has been used instead of the dearer charcoal.

Gunpowder Plot Plot to blow up the Houses of Parliament on Nov. 5, 1605, the day on which James I. was to open Parliament. The plot had been concocted by a group of discontented Roman Catholics, but one of these, Francis Tresham, had sent a warning to a friend in Parliament, Lord Mounteagle. This led to the discovery of Guy Fawkes, a brave but desperate soldier, in the cellars. Fawkes was tortured and executed, and the other conspirators, including Robert Catesby, were captured later and executed. Many books and pamphlets have been written about the plot.

The plot made a great impression in the country and since then Nov. 5 has been commemorated by the lighting of bonfires and by firework displays. Since then, too, the vaults under the Houses of Parliament are always searched before the opening ceremony.

Gunter Edmund. English mathematician. Born in Hertfordshire, in 1581, he was educated at Westminster School and Oxford, and in 1615 was made vicar of S. George's, Southwark. Appointed Professor of Astronomy at Gresham College, 1619, he was the inventor of several useful mathematical devices known by his name. These include Gunter's chain, 22 yds. long and of 100 links, which is used in surveying; Gunter's scale, used in trigonometry and navigation; Gunter's quadrant for estimating altitudes,

and time; and Gunter's line, a logarithmic line. He died Dec. 10, 1626.

Gurkha Name used for certain tribes who live in Nepal. They appear to have settled in Nepal in the 16th century. Owing to their fighting qualities they are recruited for the Indian army, in which there are several Gurkha regiments. Their enlistment is regulated by an agreement between Nepal and the Government of India. Their chief weapon is a heavy curved knife called the kukri.

Gurnard Family of fishes allied to the bullheads. They have spiny, armoured heads, crawl over the sea floor on six sensitive, finger-like feelers, and emit grunt-like sounds when captured. British coasts yield the red gurnard, the grey gurnard, and, less commonly, the streaked and lantern gurnards, besides the great sapphire and piper gurnards, which sometimes weigh as much as 5 lb.

Gurney Name of a famous family of bankers. It appeared in Norfolk in the 12th century and in the 17th became associated with the Quaker movement. John Gurney became a merchant in Norwich and his sons, John and Henry, became bankers in that city. A later member of the family was Joseph John Gurney, famous as a philanthropist. He was the brother of Elizabeth Fry and his home life at Earlham Hall is described in *The Gurneys of Earlham* by A. Hare. He died Jan. 4, 1847.

Joseph J. Gurney had a brother, Samuel, who was associated with the London banking firm of Overend, Gurney & Co. which failed in 1866. This did not include the bank in Norwich, which, in 1896, was amalgamated with Barclay's Bank.

Gurney Name of a family of shorthand writers. Thomas Gurney (1705-1770) was born in Bedfordshire and was for a time a schoolmaster. In 1737 he was appointed shorthand writer at the Old Bailey, London, the first appointment of its kind. He also became shorthand writer in other courts of justice and in the House of Commons. He published, in *Brachygraphy*, a description of his system. He died June 22, 1770, and was succeeded by his son, Joseph (1744-1815), who carried on the business.

Joseph's younger son, William Brodie Gurney (1777-1855) was, in 1813, appointed official shorthand writer in the Houses of Parliament, and the family retained that position until the 20th century. His son, Joseph Gurney (1804-79) took over the work in 1845, and, on his resignation in 1872, the post passed to his nephew, W. H. Gurney Salter. On the latter's retirement the position passed away from the family.

Gusher Term used for an oil well. From these the oil spurts out without assistance as soon as the supply has been struck. The flow from some of the American gushers is enormous, sometimes as much as 50,000 barrels in a day. If it is desired to stop the flow, the wells are closed by an elaborate process called capping.

Gustavus Name of five kings of Sweden, the second being known as Gustavus Adolphus. The first two belonged to the house of Vasa, a name given to Gustavus, a son of Eric, a Swedish nobleman. Born May 12, 1496, he won fame in fights with the Danes who, under his leadership, were driven from Sweden. The people then chose him as their king in 1523 and later made the crown

hereditary. He did a good deal for his country which, under him, adopted the reformed religion. Gustavus died Sept. 29, 1560.

Gustavus III. was king from 1771 to 1792. Owing to his love of French customs and his extravagance, he was very unpopular and was shot in Stockholm, March 29, 1792. **Gustavus IV.**, a son of Gustavus III, became king when only 14 years old. After an unprosperous reign, he was dethroned in 1809. He lived mainly in Switzerland until his death, Feb. 9, 1837.

Gustavus II. King of Sweden, known as **Gustavus Adolphus**. A son of King Charles IX., he was born in Stockholm, Dec. 9, 1594. When quite young he began to share in the government and, in 1611, on his father's death, he became the third king of the Vasa family. Much of his reign was spent in warfare, but he found time to improve the state of his country, which was poor in every way.

Gustavus is chiefly famous as a soldier. Under his direction the Swedish army became remarkably efficient, proving its worth in wars conducted by the king, who forced Denmark to surrender territory taken from Sweden, and compelled Russia to give him part of Finland and Livonia. Later he was equally successful in his struggle with Poland. In 1630, having won for himself the reputation of the first soldier in Europe, Gustavus led his experienced army into Germany to assist the Protestants in the Thirty Years' War. For two years he dominated the scene, winning one victory after another, and changing the fortunes of the struggle. His two greatest victories were Breitenfeld, Sept. 17, 1631, and Lützen, Nov. 16, 1632. At Lützen he was killed. Gustavus left his throne to his only child, a daughter, Christina.

Gustavus V. King of Sweden. A son of Oscar II., he was born July 16, 1858, and served for a time in the army. In 1907 he became king. Gustavus married in 1881 a daughter of the Grand Duke of Baden. Their family consists of two sons, the Crown Prince Gustavus Adolphus, and William, Duke of Södermanland. The former married, firstly, Margaret, daughter of the Duke of Connaught, and secondly, in 1923, Lady Louise Mountbatten. By his first wife he had five sons.

Gut Tough, semi-transparent material prepared from the intestines of sheep and other animals. It is used for various purposes. The intestines, after being cleaned, scraped and washed, form the coverings for sausages, or, cut into strips which are spun or twisted, are used for violin strings, cords for tennis rackets, etc. Silkworm gut, employed for dressing the hook ends of fishing tackle, is prepared from the glutinous secretion of the silk glands of the silkworm.

Gutenberg Johann. German printer. He became an artisan at Strasbourg, where he worked on an idea that had come to him, nothing less than the printing of books from movable type. Returning to Mainz in 1448, he obtained money from Johann Fust and set up a printing press. Some work was done, but it is not certain that all the books attributed to Gutenberg were from his press; indeed, printing was probably done in rough fashion before his day, but the value of his work cannot be overestimated. He died about 1468. In 1901 a Gutenberg Museum was opened at Mainz.

Guthrie Sir James. Scottish painter. Born at Greenock, June 10, 1859, and educated at Glasgow University, he studied art in London and Paris. He became a member of the Glasgow School of Painters and in 1902 was elected president of the Royal Scottish Academy. He had been an associate since 1888 and a member since 1892. At first a painter of subject pictures, he later concentrated on portraits. *The Funeral in the Highlands*, *To Pastures New* and *Schoolmates* are among the best known of his subject paintings. He died Sept. 6, 1930.

Guthrie Thomas. Scottish divine. Born July 12, 1803, he was educated at the University of Edinburgh and in Paris. He became a minister in an Aberdeenshire village, and was chosen minister of the Old Greyfriars Church in Edinburgh in 1837. In 1840 he moved to St. John's Church. In 1843 Guthrie followed Chalmers in leaving the established church. A church, Free St. John's, was opened for him and there he remained until his retirement in 1861. He was moderator of the church in 1862 and for some years edited *The Sunday Magazine*. He died Feb. 21, 1875. His son, Charles John Guthrie (1819-1920), became a judge of the Court of Session as Lord Guthrie.

Guthrum Leader of the Danes. In 871 or earlier he appeared in England, where he won several successes over Alfred the Great. In 878, however, Alfred was victorious at Ethandun, and he and Guthrum made the Treaty of Wedmore by which England was divided between them. Guthrum became a Christian and reigned over the Danelagh until his death in 890.

Gutta Percha Brownish red substance which exudes from the stems of certain Malayan trees. Formerly *Palaquium gutta* was the chief source of supply, but, owing to reckless destruction, it is now only met with in botanic gardens. *Gutta percha* being obtained from other species and the allied *payena leeri*. *Gutta percha* is tough, inelastic, plastic at 119°F., and less resilient and durable than rubber. It is used for insulating cables, for belting and for acid-proof vessels.

Guy Thomas. English bookseller and founder of Guy's Hospital. Born in Southwark, about 1615, and educated at Tamworth, he was apprenticed to a London bookseller. In 1669 he started in business for himself. He was M.P. for Tamworth, 1695-1707. He died Dec. 27, 1724.

Guy was very successful in his business and increased his fortune by the judicious buying and selling of South Sea shares. His charities included gifts to Tamworth, where he built a town hall and some almshouses, and gifts of money to St. Thomas' Hospital and Christ's Hospital, London. He set apart nearly a quarter of a million for the building and endowment of the hospital in Southwark that bears his name. This is one of the largest of the London hospitals. It has over 600 beds and is equipped with everything to make it a medical school of the first rank.

Guyon Madame. French mystic. Jean Marie Bouvier de la Mothe was born April 13, 1618, and in 1664 married Jacques Guyon. He died in 1676 and his widow, now wealthy, gave her time to philanthropic work. She began also to study and practise the doctrine of quietism, a kind of mysticism. For this she was expelled from

Geneva, so, in 1886, she settled in Paris where she exercised a good deal of influence. She was, on account of her teaching, imprisoned in 1688 for a short time, and was again a prisoner from 1695 to 1702. She died at Blois, June 9, 1717. Madame Guyon wrote a good many books explaining her doctrine. She ranks as one of the leaders of modern mysticism.

Gwalior State of India. It is in the Central India Agency and is ruled by a maharajah. It covers 26,350 sq. m. and much of it is forest. The capital is Lashkar. Pop. 3,200,000, nearly all Hindus. The state, which was once part of the great Maratha empire, came first under British influence in 1782.

Near Lashkar is Gwalior city, the old capital. This has ruins of Jain and other temples, a palace, and several other buildings of historic interest. Overlooking it is the fort of Gwalior, restored in 1886. It is 65 m. from Agra with which it is connected by railway.

Gwynn Nell. English actress, mistress of Charles II. Born probably in London, Feb. 2, 1650. Eleanor, or Nell, Gwynn became an orange girl at the Theatre Royal, Drury Lane, London. She first appeared as an actress in 1665, and continued on the stage until 1682, being very successful in comedies of a somewhat vulgar kind. In 1669 she became the mistress of Charles II., and gave birth, May 8, 1670, to a son, Charles, who was later created Duke of St. Albans. A second son, James, was born in 1671. She died of apoplexy in 1687, and was buried at St. Martin's in the Fields, London.

Gymkhana Miscellaneous sports display. It originated in Indian military stations, apparently about 1861, to relieve the monotony of station life for both officers and men. It began with pony races at catch weights and afterwards included other competitions, serious and amusing, on foot, bicycle and horseback.

Gymnastics Athletic exercises for strengthening the body. They were practised by the Greeks, who attained a level of physical excellence never since surpassed. After a period of decline, the practice of gymnastics was revived in many European countries early in the 19th century, and under one form or other is now part of the educational system, for both boys and girls in Great Britain and other countries. It is also an important part of the training of men in the fighting services.

There are in the main two kinds of gymnastics. In one, apparatus, such as parallel and horizontal bars, vaulting horses, Indian clubs, ladders, ropes, rings, etc., is required. In the other, which is known as Swedish drill, or the Swedish system, from its origin in that country, little or no apparatus is needed. Rhythmic is a form of gymnastics in which music plays a part.

A **gymnasium** is a place fitted with apparatus for gymnastic exercises. To-day these are provided in most schools and are found in training centres of all kinds. The Germans used the word for a school for higher education.

Gympie Town of Queensland. It is on the railway, 90 m. from Brisbane, and is the centre of a mining district in which gold and other metals are produced. Its port is Maryborough, about 40 m. away. Pop. 9600.

Gynaecology Branch of medical science covering the

special ailments of women. Ancient records show that it was a specialised branch of medicine over 3000 years ago. Improvements are largely due to Sir J. Y. Simpson (1811-1870) of Edinburgh (who introduced chloroform), and it has since benefited by modern methods of operative surgery.

Gyp In the university of Cambridge the usual name for a college servant. The Oxford equivalent is scout.

Gypsies Nomad people. They are believed to be of Indian origin, and entered Europe early in the 15th century. They are now found in most of the countries of southern Europe, especially, perhaps, in Hungary, the Balkan countries, Italy and Spain. There are some thousands of them in England. In 1931 a permanent camp for the gypsies was opened in Surrey. They live in caravans and earn a livelihood as tinkers, makers and sellers of basketware and in other ways. Many of the women tell fortunes. The true gypsy has a tawny skin, black hair, lustrous eyes and gleaming teeth. They have their own customs and speech and are very superstitious. They call themselves Romani and in Italy are known as Zingari.

Gypsophila Hardy plant also known as chalk plant or gauze flower. With slender stems and sprays of tiny white flowers, it is grown chiefly for cutting, being in table decoration, or bouquets, frequently mingled with other flowers, e.g., sweet peas.

Gypsum Mineral, a hydrous sulphate of lime, occurring in nature in several different forms. In the massive state, it is a soft, white material, or reddish-brown in impure varieties. It occurs in England in large beds in Triassic marls, associated with rock salt, and in Tertiary strata near Paris. It also occurs as alabaster, a semi-crystalline variety, or in fine crystals, as selenite, and in fibrous form, as satin spar. Gypsum is used for making plaster of Paris and as a top dressing for soils.

Gypsy Moth European moth, *Porthetria dispar*. Introduced into the U.S.A., it became a pest in woods and orchards around Massachusetts about 1885. The larvae sometimes defoliate the plants but are controlled by suitable poisons, while parasites and predators from Europe have proved beneficial.

Gyroplane Form of aeroplane. In the form known as the autogyro, invented by Sr. de la Cierga, the fixed wings of the normal aeroplane are replaced by wings set round a vertical axis about which they are free to revolve while the plane is in motion. This machine cannot remain stationary in the air, but cannot stall, and lands at a low speed.

Gyroscope Mechanical device designed to illustrate the dynamics of rotating bodies. The name was given by Foucault in 1852. The commonest example is the gyroscope top which consists of a heavy fly-wheel revolving about an axle at right angles to the plane of the wheel within a brass ring. The wheel is set spinning rapidly, the direction of its axis remaining unchanged unless some other force intervenes. Many gyroscope devices are used for stabilising purposes, such as the gyro-compass, the gyro-directing mechanism for torpedoes, and the gyro-governor, in which a gyroscope regulator controls the speed of an engine.

HAARON Name of seven kings of Norway. The first reigned from about 940 to 961 and was called the Good. He passed his early life in England. The succeeding five were comparatively unimportant.

Haakon VII. was a son of Frederick VIII., King of Denmark. Born Aug. 3, 1872, he married in 1898 Maud, daughter of King Edward VII. In 1905, on the separation of Norway from Sweden, he was chosen king and he took the name of Haakon instead of his own name, Charles. He was crowned, June 22, 1906. His heir is his son, Olaf, who married a princess of Sweden.

Haarlem Town and river port of the Netherlands. In the province of North Holland, it is 11 m. from Amsterdam, with which it is connected by railway. The chief buildings are the old church, with its lofty tower, the meat market, now used for municipal purposes, the weigh house and several nurseries. The town hall contains a valuable collection of paintings. The IJver Spaaren flows through the town and is used for shipping. Haarlem is a centre of the bulb-growing industry, and from here millions of bulbs are exported. Printing is another industry. Pop. (1930) 119,159.

Habakkuk One of the minor prophets of the Bible. He lived about 600 B.C., and one tradition about him is that he was carried to Babylon by an angel in order that he might furnish Daniel with food. His book consists of a prophecy directed against the Babylonians, for whom he pleads with God, and a lyrical poem about the divine majesty.

Habeas Corpus Term meaning "you may have the body;" used in English law. Several Acts of Parliament begin with these words, the most famous being the one of 1679. Its object was to prevent persons being kept in prison without being brought to trial, a practice frequently resorted to in the 16th and 17th centuries. Under the Act of 1679, if a person is so detained, a writ can be issued to his gaoler ordering him to bring the prisoner for trial to a certain place on a certain day. The writ can also be issued if a child is kept forcibly away from its parent or guardian. In times of disorder the Habeas Corpus has been suspended so that suspected persons could be imprisoned and kept without trial.

Haberdasher Name of a retail trader who sells small wares and articles accessory to dress and furniture. He is usually a draper also, and the tendency is for that term alone to be used.

The **Haberdashers' Company** is one of the twelve livery companies of London. Its hall is in Gresham St., and it has a large income, much of which is set aside for the maintenance of schools and almshouses. The company has schools for boys at Hatcham and Hampstead, and for girls at Acton and Hatcham.

Hackenschmidt Georges. Russian wrestler. He was born in 1878, and soon became famed for his strength and skill as a wrestler. After defeating many rivals in catch-as-catch-can con-

tests on the Continent, he came to England in 1901 and on the music hall stage met some of the foremost wrestlers of the day. On April 4, 1908, in a bout with Gotoh at Chicago, after wrestling for two hours, Hackenschmidt refused to continue and forfeited the world's championship.

Hackney Breed of horse. It mingles thoroughbred with English shire or cart horse strains, and is used for riding and driving; sometimes it is kept for hire. The name is often shortened to hack. Compact, 14 hands and over, it has good action and disposition. There is a Hackney Horse Society for promoting the breed and shows are held.

The **Hackney cab**, now almost obsolete, was so named because it was drawn by horses of this kind.

Hackney Borough of London, one of the 28 in the county. It lies to the north-east of the city. The open spaces include Hackney Marshes, Hackney Downs and part of Victoria Park. Pop. (1931) 215,380.

Haddington Burgh of East Lothian (Haddingtonshire), also the county town. It is on the Tyne, 18 m. from Edinburgh, on the L.N.E. Ry. Mrs. Carlyle is buried in the churchyard. John Knox, who was born near, gives his name to the Knox Institute. A 15th century bridge crosses the river. Pop. (1931) 4405.

Haddingtonshire County of Scotland, also called East Lothian. In the south-east of the country it has a coastline on the North Sea and the Firth of Forth. Its area is 267 sq. m. Haddington is the county town. Other places are North Berwick, Dunbar and Gullane. The county is chiefly an agricultural area, but it has some coal mines. In the south are the Lammermuir Hills. Pop. (1931) 47,369.

Haddock Food fish of the cod genus (*Gadus aeglefinus*). Ranging the North Atlantic, it is recognised by the black patches above the breast fins and the black lateral lines. It averages 1 lb. in weight, but may reach 17 lb. and exceed 3 ft. in length. It hugs British coasts in winter, spawning in spring, and is taken by mussel bait or trawling. It is eaten either freshly cooked or split, dried and smoked, when it is called Finlon, or Pinnan haddock. **Norway haddock** and **Jerusalem haddock**, both spiny-finned, are quite distinct varieties.

Haddon Hall Derbyshire residence of the Duke of Rutland. It stands on the Wye, 2 m. from Bakewell, and is one of the most historic houses in England. Part of it dates from the 12th century. The chief rooms are the long gallery and the banqueting hall. The chapel is also noteworthy. Haddon belonged to the Vernons before passing to the Manners family after the elopement of the heiress, Dorothy Vernon, with Sir John Manners about 1580. Soon after 1700 the Manners family ceased to reside there, but after the Great War it was again made habitable and is now used as a residence by the Duke of Rutland. Sir Arthur Sullivan wrote an opera, *Haddon Hall*.

Hades In Greek mythology, the god of the underworld, also called

Pluto. Later, the word denoted the invisible underworld itself, the abode of the departed, conceived as situated within the earth, and bounded by the river Styx, over which Charon ferried the dead. The Greek New Testament uses it for the Hebrew Sheol, or Gehenna, translated hell in the authorised version of the Bible, but frequently retained as Hades in the revised version, *c.g.*, Luke xvi.

Hadfield Town of Derbyshire. It is 187 m. from London by the L.N.E. Rly., and is 13 m. from Manchester. There are cotton manufactures. The Derwent rises near here. Pop. 6371.

Hadfield Sir Robert Abbott. English scientist. Born at Sheffield, Nov. 29, 1859, he entered business there, and in the iron and steel industry he soon became a leading figure. He built up the business of Hadfields, Ltd., and was master cutler in 1899. He devoted much time to the technical side of the industry and his inventions were of the highest importance. For these he was elected F.R.S., and received numerous other honours, both at home and abroad. In 1908 he was made a knight, and in 1917 a baronet. Hadfield has written a great deal on metallurgy.

Hadham Two villages of Hertfordshire, Great and Little. Great or Much Hadham is 1 m. from Bishop Stortford, and 26 from London, on the L.N.E. Rly. The Bishop of London had a palace here at one time. Little Hadham, which is quite near, possesses a 12th century church. Here is Hadham Hall, an Elizabethan building.

Hadleigh Village of Essex. It is 5 m. from Southend and is notable because of the farm colony founded here by the Salvation Army in 1891.

Hadleigh Urban district of Suffolk. It is 9 m. from Ipswich, and 70 m. from London by the L.N.E. Rly., and stands on the River Brett. There are flour mills and malting works. Pop. (1931) 2952.

Hadley Wood District of Middlesex. It is 10 m. from London, on the L.N.E. Rly. It is part of the urban district of Barnet.

Hadrian Roman emperor. Publius Aelius Hadrianus was born of Roman parents in A.D. 76. He became known as a soldier and an administrator and, having been consul in 108, he was selected by his friend and patron, the Emperor Trajan, as his successor. He reigned from 117 to 138, on the whole successfully. He abolished the farming of taxes and was responsible for other salutary reforms. He made no additions to the empire, through which he travelled extensively. He visited Britain, where he was responsible for the wall called after him, and erected the famous villa near Tivoli of which the ruins still exist. He died in 138, having written a poem to his soul.

Hadrian's Wall Defensive wall extending from the Solway Firth across England to Wallsend-on-Tyne. It was built about A.D. 122 by Hadrian and repaired by Severus in the 3rd century. It was garrisoned by about 11,000 soldiers and possessed a number of large and small forts. The wall was 73 m. long and its course may still be traced. Excavations along it have revealed Roman coins, pottery, etc., in great abundance. Here and there are substantial remains in the shape of forts and camps. It was classed as

an ancient monument in 1928 and parts of it, those near Chesters and Housesteads, for example, are national property. See CHESTERS.

Haeckel Ernst Heinrich. German scientist. Born at Potsdam, Feb. 16, 1834, he was educated at Würzburg, Berlin, and Vienna, and became a doctor. After practising for a few years, he settled at Jena as Professor of Comparative Anatomy and Director of the Zoological Institute. His fame rests upon his writings on evolution, in which he firmly believed. He wrote a book translated into English as *The Natural History of Creation*, in which he showed that the descent of man from the ape was unbroken. His most popular work, *The Riddle of the Universe*, explains the universe as brought about by purely natural causes, without the intervention of any divine power. He died Aug. 8, 1919.

Haematite Most widely distributed of the iron oxides. Haematite is a peroxide of iron containing in its purest forms 70 per cent. of iron. It is distinguished by giving a reddish streak when scratched, and occurs in black metallic crystals as "specular iron," dull red fibrous masses, or reniform masses with a radiate structure, and as red ochre, an earthy variety. Haematite is an important iron ore and is found in sedimentary rocks in many parts of the world.

Haemophilia Congenital tendency to bleed immoderately from slight wounds or even spontaneously, as from the nose. It is almost entirely confined to males, called bleeders, and is transmitted solely through the female line. On this account, tooth drawing and other operations are dreaded, as the excessive bleeding is difficult to arrest, and may prove fatal.

Haemorrhage Escape of blood from a blood vessel. It is arterial when an artery is injured, bright-red blood flowing in spurts rhythmically with the beating of the heart; venous when a dark and steady stream flows from a vein; and capillary when blood oozes gently out of the torn surfaces of wounds from the minute vessels connecting arteries and veins. Bleeding can be controlled by pressing on the bleeding point, pressing on the main artery supplying it, or applying a styptic according to the type of bleeding.

Treatment. Medical aid should be obtained at once. The patient should be kept lying down near an open window with all tight clothing loosened. No stimulants should be given until the bleeding is checked, but if he can swallow, he may be given ice to suck. The body must be kept warm as for collapse (see SHOCK).

External haemorrhage can usually be checked by firm bandaging or by pressure on the artery on the side of the wound near the heart. Never give stimulants until haemorrhage has ceased.

In haemorrhage from the socket of an extracted tooth make the patient rinse out the mouth with very hot water; if the bleeding does not cease, add to the tumblerful of hot water a teaspoonful of powdered alum. The socket can be plugged with clean cotton wool, leaving a surplus of wool outside the plugged part, and the mouth should then be closed by means of a bandage under the chin and tied on top of the head.

Hafiz Persian poet. He was born at Shiraz and lived in the 14th century, his real name being Shams-ud-din Mohammed. He taught philosophy at Shiraz

until his death about 1388. His tomb may still be seen near the city.

The poems of Hafiz are short lyrics, somewhat sensuous, and embody the mystic philosophy of the Sufi sect. They have been translated into English.

Hafnium Very rare metallic element. It has the atomic weight 178.6 and the symbol Hf. It is related in many ways to the metal zirconium, and was discovered in 1923 in the mineral zircon, a natural silicate of zirconium. Little is known of its properties and compounds.

Hagar Sarah's Egyptian handmaid. She became Abraham's concubine and the mother of Ishmael. Sarah caused her banishment to the wilderness, whence later she returned to Abraham. She was finally sent away. (Gen. xxi., 9-21).

Hagen Walter. American golfer. Born at Rochester, New York, in 1893, he became a professional golfer. In 1914 and 1919 he won the open championship of the U.S.A., and in 1922 he won the open championship of Great Britain, as he did also in 1924, 1928 and 1929. One of the world's greatest golfers, he won many other trophies, including the open championship of France in 1920, of Belgium in 1924, and of Canada in 1931. In U.S.A. Hagen won the open championship in 1921, and in four successive years, 1924, 1925, 1926 and 1927, and the professional championship in 1914 and 1919. He has played several times in international matches.

Hagenbeck Carl. German trainer of animals. He was born at Hamburg in 1844, the son of a man who did a little business in buying and selling wild animals. Carl took this up with avidity, travelled a good deal and showed in public animals he had trained. In 1897, at Stellingen, near Hamburg, he opened a zoological garden on new principles, keeping the animals, as far as possible, in the open. Hagenbeck died in 1913, but the gardens still bear his name.

Haggai One of the minor prophets of the Old Testament. His book contains four prophecies, designed to encourage Zerubbabel and his compatriots to rebuild the temple at Jerusalem. Their keynotes are the reiterated counsels, "be strong" and "consider." They are dated in the second year of Darius Hystaspis, 520 B.C.

Haggard Sir Henry Rider. English novelist. Born at Bradenham, Norfolk, June 22, 1856, he was educated at Ipswich Grammar School. He began his career as an official in the Transvaal, whither he went in 1875. In 1879, having returned to England, he became a barrister, and in 1882 he published *Cetewayo and his White Neighbours*. In 1884 he published *Daan*, the first of his novels, and this was followed by others, most of which were very successful. The best known are *She*, 1887, which created quite a sensation, *King Solomon's Mines*, *Jess* and those associated with the name of Allan Quartermain. Others are *Colonel Quaritch*, *V.C.*, *Nadia the Lily*, *Montezuma's Daughter*, *People of the Mist*, *Joan Haste*, and *Ayesha*. With Andrew Lang he wrote *The World's Desire*. Haggard, himself a landowner in Suffolk, took a great interest in agricultural problems, on which he wrote several books. In 1910 he was knighted, and he died May 14, 1925.

Haggis Scottish dish of French origin. It consists of the heart, lungs and liver, finely minced and half the liver grated,

of a sheep, to which are added two chopped onions, one pound of suet, the juice of one lemon, half a pint of oatmeal, two teaspoonful of salt, one teaspoonful of pepper, half a grated nutmeg, and half a pint of gravy. This mixture is placed in a cleansed sheep's stomach (called the haggis bag) which is then sewn up and left to boil for three hours. During the first half-hour it should be pricked with a needle.

Hagiology Historical research and criticism specially applied to the lives of saints. Hagiology includes all biographies of saints and martyrs. The oldest is that of Eusebius. The Jesuit, Hierbert Roseweyde, revised existing hagiologies and started the great collection called the *Acta Sanctorum*.

Hagley Village of Worcestershire. It is 13 m. from Wolverhampton, on the G.W. Rly. Hagley Hall has been for some centuries the seat of the Lytteltons.

Hague The. Capital of the Netherlands. It is situated about 3 m. from the sea, and 11 m. from Rotterdam, and is well served by railway lines. The legislature meets in the Binnenhof, in which is the famous Hall of the Knights. The Palace of Peace is an imposing block. The Mauritshuis contains a fine collection of pictures, once owned by the house of Orange. There are many museums, among them the famous Meesdag and several libraries, including the valuable royal library. The Vyver is an ornamental lake in the middle of the city. Near it is a large tower, formerly a prison. There are some fine squares and spacious parks, notably the Willems Park where is an imposing national monument.

In the city the sovereign has a palace, enlarged early in the 19th century, with large gardens. To the east is the palace called the Huizen Bosch, in a large park. Near are the zoological gardens. The Hague has an industrial quarter, and here are printing works and manufactures of earthenware, motor cars, furniture, etc. Pop. (1930) 436,568.

For some centuries the Hague was a residence of the counts of Holland. In 1814, after it had been in French possession for a few years, it was made the capital of the new kingdom of the Netherlands.

HAGUE CONFERENCES. In the 19th century the Hague became popular as the seat of international conferences. The most important was the peace conference called by the Tsar Nicholas II. in 1899, and the one that followed it in 1907. At the earlier of these the Hague Tribunal was established.

Hague Tribunal Short name for the Permanent Court of International Justice which sits at the Hague. It was founded in 1899, and a building, the Palace of Peace, was erected for its work by Andrew Carnegie and others. Its judges are now appointed by the League of Nations for 9 years and hear cases between sovereign states that are referred to them.

Hahnemann Samuel Christian Friedrich. German physician. Born at Meissen, April 10, 1755, and educated at Leipzig, he maintained that like must be cured by like: drugs must be used in small quantities to produce in the sick person the same results that they would produce in a healthy one. This was called *homeopathy*. He died in Paris, July 2, 1813. Hahnemann's chief books have been translated into English as *The Friend of Health* and *The Organon of the Rational Art of Healing*.

Haifa Seaport city of Palestine, situated on the Bay of Acre, at the foot of Mt. Carmel. Under British mandatory rule it has grown and developed a flourishing export trade in Hauran wheat and Trans-Jordanian products. One of the two ocean terminals of the Iraq Petroleum Company's pipeline, now under construction, will be at Haifa. Pop. about 35,000.

Haig Earl. British soldier. Born June 19, 1861, Douglas Haig belonged to a fifehire family engaged in the distilling business. He went to Clifton College and Brasenose College, Oxford, afterwards passing through Sandhurst into the army, 7th Hussars. He took a course at the staff college and served in the Sudan in 1898; in 1900-02 he was in South Africa, where he was Chief of the Staff to Sir John French, and later commanded some columns in the guerilla warfare.

By now Haig had made a reputation and during the next 10 years he filled important posts. From 1903-06 he was Inspector General of Cavalry in India; from 1906-07 Director of Military Training in England; from 1907-09 Director of Staff Duties, and from 1909-12 again in India, this time as Chief of the Staff.

In 1912 Sir Douglas Haig, as he had now become, was appointed to the Aldershot Command. This meant the leadership of the army corps there, and in Aug., 1914, he went with it to France. He commanded the first corps at Mons and through the terrible winter months, leaving it in Jan., 1915, to take over the first army. He led this at Loos, after which, in Dec., he succeeded French as Commander-in-Chief on the western front. This onerous position he held to the end of the war, being responsible for the Battle of the Somme (1916), the indecisive engagements of 1917, and, in 1918, the final offensive which drove back the Germans and finished the struggle.

Honours were showered upon Haig at the peace. He was made an earl, given the Order of Merit and voted £100,000. Bemersyde, the old home of the Haigs, was presented to him unofficially. He died in London, Jan. 29, 1928, and was buried in Dryburgh Abbey. Since 1917 he had been a field marshal. He married the Hon. Dorothy Vivian, and left an only son who succeeded to his title, Earl Haig of Bemersyde. Memorials to Haig took the form of houses for ex-service men to cost £500,000, a statue in Whitehall and Haig House at Ypres.

Haileybury English public school. It is just outside Hertford and originated as a college, opened in 1806 by the East India Co., for educating boys for its service. In 1862, the company having been dissolved, the buildings were acquired for a public school and have since been much enlarged. There is accommodation for over 500 boys.

Hailsham Market town of Sussex. It is 54 m. from London by the S. Ry., and 7 m. from Eastbourne. It is an agricultural centre. Pop. 4600.

Hailsham Viscount. English lawyer. Born in 1872. Douglas McGarel Hogg was the eldest son of the philanthropist, Quintin Hogg. He was educated at Eton and, after some years in business, became a barrister in 1902. In 1922 he was elected Conservative M.P. for Marylebone, was made Attorney-General and was knighted. He left office in 1923, but returned in 1924 and was Attorney-General until made Lord Chancellor and a peer in 1928. In 1929 he

resigned with the other members of the Unionist Government and acted as one of the Opposition leaders in the House of Lords. In 1929 he was made a viscount and in 1931 he joined the National Government as Secretary for War.

Hainaut Province of Belgium, once an independent country. It is in the part of Belgium that lies nearest to France, being the district around Mons and Charleroi. The inhabitants are chiefly Walloons. For some centuries Hainaut had its own counts, the first appearing about 900. Later it became part of Burgundy and then of the Netherlands.

An open space in Essex is called **Hainault Forest**. It adjoins Epping Forest and covers 800 acres, but only about 250 acres are forest proper. It was bought for the public and opened by the London County Council in 1906, and on it is a golf course.

Hair Filamentous outgrowth from the skin, forming the coat of mammals, and corresponding to the feather in birds. The word applies also to analogous outgrowths from the bodies of plants, insects and other organisms. Each hair is secreted by a single papilla in a skin follicle, with fat-forming glands, and comprises a 'bulbous root, shaft and point. It contains neither blood vessels nor nerves, but coloured pigment, the failure of which produces grey hair. The absence of hair is known as baldness (*q.v.*).

Commercially hair is much used. The finer kinds, such as the hair of goats, etc., are used for making shawls and other garments. The hair of horses, being coarser, is used as a stuffing and padding for furniture. Other kinds of hair are also used for upholstery and hair forms the stuffing of a great number of mattresses. The hair of the cow is used for making felt for roofing and similar purposes.

Hairdressing Method of dressing the hair. The word is used chiefly in connection with women's hair, but to a lesser extent men's hair is dressed, although the traders who attend to this are usually called barbers, because their duties include attention to the beard.

Fashion in hairdressing has varied very much with various countries and ages, but amongst civilised and semi-civilised peoples attention has always been paid to it. The Great War was partly responsible for a drastic change in the method of dressing women's hair, principally owing to the fact that the majority of women began to wear the hair short. This meant more frequent visits to the hairdresser, and in consequence the women's side of the business enjoyed unprecedented prosperity.

In Great Britain hairdressing is an organised calling. It has its trade organisations and papers, including *The Hairdressers' Weekly Journal*. There is a Hairdressers' Registration Council at 20 Cranbourne Gardens, London, N.W. 11, and a Hairdressers' Parliamentary Committee for looking after its interests. Since 1930 hairdressers have been compelled by law to close their shops on Sunday.

Haiti Island of the West Indies. Sometimes called Hayti or San Domingo, it lies between Porto Rico and Cuba, the three dividing the Atlantic Ocean from the Caribbean Sea. It is 400 m. long and covers 29,500 sq. m. The area is mountainous, but the soil is generally fertile. Much of the land is forest. The island is divided into two republics, Haiti in the west, and San Domingo in the east. Columbus, who discovered it in 1492, called it



FASHIONS IN HAIRDRESSING.—Curious coiffures worn by women of different countries through the centuries. 1, Japanese; 2, French, 1805; 3, Hopi Indian (American); 4, Venetian, 1495; 5, English, 1780; 6, African; 7, English, 1900; 8, Spanish, 1800.

Hispaniola. In 1640 France took possession of the island, and it remained French until 1804 when a negro republic was established. In 1844 the negroes of the east broke away and formed the republic of San Domingo. The slaves were freed in 1789; an attempt by Napoleon to revive the old system failed.

Haiti Republic of the West Indies. It occupies the western part of the island of the same name. It covers 10,200 sq. m. Port au Prince is the capital and chief seaport, other towns are Cape Haitien, Cayes and Jacmel. Cocoa, coffee, sugar and other tropical products are grown. The people are chiefly negroes and mulattoes; they speak a dialect called Creole French and in religion are Roman Catholics.

Since 1915 the republic has been under the protection of the United States. It is ruled by a president and a council of state, the executive being in the hands of secretaries of state, except certain branches, finance and the constabulary, for instance, which are under American advisers. The banking system is also in American hands. The unit of currency is the gourde, a gourde being equal to one-fifth of the American dollar. There are some good roads and a few miles of railway in the republic. Pop. 2,500,000.

Hake Fish of the cod family (*merluccius vulgaris*). Having no barbel and fewer dorsal and anal fins than cod, it may reach 3 ft. in length and surpass 30 lb. in weight. It is caught in pilchard nets, especially at night, and in trawlers in the North Atlantic, where is its chief home. It is a food fish.

Hakluyt Richard. English writer. Born in Herefordshire about 1552, he was educated at Westminster School and Oxford. He lectured on cosmography at Oxford and began to collect information about the voyages of English and other sailors. In 1582 he published *Divers Voyages Touching the Discovery of America*. Having been ordained, he was a chaplain in Paris from 1583 to 1588. In 1590 he was chosen rector of Netherfield in Suffolk, and in 1602 Prebendary of Westminster. He died Nov. 23, 1616, and was buried in Westminster Abbey.

Hakluyt's chief work is the collection called *Principal Navigations, Voyages and Discoveries of the English Nation*. He left many manuscripts, some of which have been published by the Hakluyt Society, which was founded in his honour in 1846.

Halbert Weapon used by soldiers in the 14th and 15th centuries. It was a combination of the pike and the axe and had a staff about 5 ft. long. The Yeoman of the Guard still carry halberts, but they have not been used in warfare since early in the 16th century. Another form of the word is halberd; the soldiers using it were called halberdiers.

Haldane Name of a famous Scottish family. Robert Haldane of Cloan, a lawyer, married Mary Burdon Sanderson, a remarkable woman who lived to be almost a centenarian. Their eldest son was Viscount Haldane (q.v.). Other sons were John Scott Haldane, an eminent scientist, especially interested in mining matters, and Sir William Stowell Haldane, a lawyer and one of the Development Commissioners. Their daughter, Elizabeth Sanderson Haldane, wrote books, and in 1918 was made a Companion of Honour.

John S. Haldane's son, John Burdon Sanderson Haldane, made a reputation as a scientist.

In 1922 he was appointed reader in biochemistry in the University of Cambridge, and in 1927 head of the genetical department of the John Innes Horticultural Institution.

A distant relative was Sir James Aylmer Lowthrop Haldane (b. 1862). He was a soldier who served on the western front during the Great War in command of a division and an army corps, and was Commander-in-Chief in Mesopotamia, 1920-21.

Haldane Viscount. British statesman. Born, July 30, 1856, he was Richard Burdon Haldane, a son of Robert Haldane of Cloanden, Perthshire. For his education he went to Edinburgh Academy and then to universities in that city and in Germany. He became a barrister in 1879 and practised in London; he was never a popular advocate, but his mental gifts made him very successful in chancery cases.

In 1885 Haldane was elected Liberal M.P. for Haddingtonshire and for 20 years, although a private member only, was a political force. In 1905 he was made Secretary for War, and in that capacity he did great work; he created the Territorial Army, and organised the force that took the field in Aug. 1914. In 1912 he became Lord Chancellor and a peer, but early in 1915 he resigned. His acquaintance with Germany and the Germans made him suspect to many, and his retirement was inevitable.

After the war Haldane appeared on Labour platforms and was soon a member of that party. In 1921 he became again Lord Chancellor and also leader of the Labour Government in the House of Lords. When the Government resigned he remained the party leader in the Lords, and he held that position until his death, Aug. 19, 1928. Haldane never married.

Strenuous as was Haldane's political and professional life, it by no means occupied the whole of his versatile mind. He kept up the study of philosophy and ranked among the leading philosophers of the day. His ideas are expressed in *The Pathway to Reality* and other writings. Education was another of his interests. He was chairman of the Royal Commission on the university of London and helped to found the newer English universities. In 1929 his *Autobiography* appeared; in his lifetime he had published *Before the War*, a defence of his activities.

Hale Urban district of Lancashire. It is 10 m. from Manchester, on the Cheshire Lines. Rly., and is practically a residential suburb of that city. In the churchyard is the grave of John Middleton, who was said to be 9 ft. 3 ins. high. He died in 1623. Pop. (1931) 10,669.

Hale George Ellery. American astronomer. Born in Chicago, June 29, 1868, he was educated at Boston. His first experience of astronomical work was gained in the observatory at Harvard, and he soon became a director of an astrophysical observatory and professor of astrophysics. In 1895 he became director of the Yerkes Observatory, and in 1897 Professor of Astrophysics at Chicago. He invented the spectroheliograph and in 1904 was appointed director of the great observatory at Mount Wilson, California. He has edited *The Astrophysical Journal*, and written a good deal on his particular subject, astrophysics.

Halesowen Urban district and market town of Worcestershire. It is 6 m. from Birmingham, on the joint line of the L.M.S. and G.W. Rlys. Iron and steel goods are manufactured. William Shenstone,

the poet, was born here. Near are the remains of an abbey. Pop. (1931) 31,058.

Halévy Name of a family of French scholars. Ludovic Halévy, made his reputation as a dramatist. He died May 3, 1908, leaving a son, Elie Halévy. He was born at Etretat, Sept. 6, 1870, and became a professor in Paris. He is known as a student of English history and institutions and his works include *The Formation of Philosophic Radicalism* and *The History of the English People in the 19th Century*, to give them their English titles.

The composer, Jacques François Fromental Elie Halévy, was a professor of music in Paris and wrote many operas. He died March 17, 1862.

Halibut Fish, the largest of the flatfish family (*hippoglossus vulgaris*). It is distributed round the northern coasts of Great Britain, but is infrequent in the English Channel. It is longer than the flounder, sometimes surpassing 8 ft. in length and 200 lbs. in weight. The eyes and dark colouration are on the right side. The fish is a popular article of food and was at one time much eaten on holy days. Its old name is holbut.

Halicarnassus Ancient city of Asia Minor. Situated on the Carian coast opposite the island of Cos, it was a Dorian colony, reaching its acme under Mausolus, who died in 353 B.C. It was the birthplace of Herodotus and Dionysius.

Halidon Hill Hill near Berwick-on-Tweed. Here on July 19, 1333, the Scots were defeated by an English army under Edward III. that was marching to take Berwick. The English, on the hill, were attacked by the Scots who were driven back. The forces on each side were small.

Halifax County borough and market town of Yorkshire. It is 7 m. from Bradford and 194 from London, standing at the union of the rivers Hibble and Calder. It can be reached by both the L.M.S. and L.N.E. Rlys. The Piece Hall, or market hall, dates from the 13th century.

The industries of Halifax are the making of carpets, woollen goods, chemicals, machinery, and coffee. Pop. (1931) 98,123. The Halifax Building Society is one of the largest in the country.

Halifax City and seaport of Nova Scotia and the capital of the province. It stands on a harbour named after it, one of the finest in the world, and owes its importance to its site. It is 837 m. from Montreal and here both the C.N.R. and the C.P.R. have terminals. Dalhousie University is the chief of several colleges and schools.

The chief winter port of Canada, Halifax has extensive docks; from here ships go to the West Indies and across the Atlantic as well as to other American ports. Since 1758 it has been a naval station and a garrison town. Here the Canadian Government, which took over the naval dockyard in 1906, has accommodation and stores for warships. Apart from shipping, the chief industries are shipbuilding, oil refining and certain manufactures. There is some fishing and it has a broadcasting station (49.59 M.). Pop. 58,400.

Halifax Marquess of. English statesman and writer. Born in 1633, George Savile was a son of Sir William Savile, Bart. In 1660 he was elected M.P. for Pontefract, and in 1668 he was made Viscount Halifax, the family estates being in Yorkshire.

He took part in business of state and became prominent as the leader of those who objected to the proposed exclusion of James II. from the throne and for about four years (1681-85) was the chief adviser of Charles II. When James became king he was made Lord President of the Council, but he soon resigned and used his influence to check the sovereign's arbitrary acts; to nullify the Declaration of Indulgence he wrote his famous *Letter to a Dissenter*.

He did not share in the invitation to William of Orange, but as he presided over the Council and the House of Lords at this time, he it was who formally offered the crown to William and Mary. He was made Lord Privy Seal by William, but in 1689 he resigned and returned to his seat, Rufford Abbey, occasionally appearing in Parliament. In 1679 he had been made an earl and in 1682 a marquess. He died April 5, 1695. His title became extinct when his son, William, the 2nd marquess, died in 1700. A grandson was the great Earl of Chesterfield, (q.v.).

Halifax was a fine orator, but his chief fame is due to his writings and his position as the great advocate of moderation and compromise in politics. His ideas on this subject are expressed in his greatest work, *The Character of a Trimmer*, the hero being himself. He also wrote *Maxims of State*, *The Anatomy of an Equivalent*, a life of Charles II., and other books, including a collection of aphorisms.

Halifax Earl of. English title, now extinct. The first earl was George Savile who was made earl in 1679 and marquess in 1682, but these titles became extinct when his son died in 1700. In 1714 Charles Montagu was made Earl of Halifax, but in the next year the title again became extinct. At once, however, it was given to his nephew, George Montagu, who was succeeded in 1739 by his son who married an heiress and took the name of Dunk. He was Lord Lieutenant of Ireland, First Lord of the Admiralty and Secretary of State under George II. and George III. When he died, June 8, 1771, the earldom again became extinct.

Halifax Earl of. English statesman. Charles Montagu was born April 16, 1661, a member of the family of the Earl of Manchester. He went to Westminster School and Trinity College, Cambridge, and in 1689 was elected M.P. for Maldon. He was Chancellor of the Exchequer, 1694-97, and First Lord of the Treasury, 1697-99. He was one of William III.'s most trusted advisers, and was concerned in the reform of the coinage and the foundation of the Bank of England. Being a Whig he was in retirement during Anne's reign, but he was again First Lord of the Treasury when George I. came to the throne. In 1701 he had been made a baron, and in 1714 he was made an earl, but very soon, May 19, 1715, he died without sons.

Halifax Viscount. English title borne since 1866 by the family of Wood. Sir Charles Wood, Bart., was elected an M.P. in 1826. From 1846 to 1852 he was Chancellor of the Exchequer in the Liberal ministry; from 1855-58 he was First Lord of the Admiralty and from 1859-66 Secretary for India. In 1866 he was made a viscount, and he died Aug. 8, 1885.

His son, Charles Lindley Wood, who became the 2nd viscount, was born June 7, 1837, and educated at Eton and Christ Church, Oxford. He was long president of the English Church Union and the recognised leader of the Anglo-

Catholic party. His son, Edward, created Baron Irwin, was viceroy of India, 1926-31. The seats of Lord Halifax are Garrowby Hall and Hickleton Hall, both in Yorkshire.

Hall Oliver. English artist. Born in London in 1869, he studied art there. He became known by his etchings, and then by his landscape paintings, one of which, "Shap Moors," is in the Tate Gallery, London. In 1920 he was elected A.R.A., and in 1927 became an R.A.

Hallam Henry. English historian. A son of Rev. John Hallam, he was born at Windsor, July 9, 1777, and educated at Eton and Christ Church, Oxford. He entered the civil service, but found much time for writing. His *View of the State of Europe during the Middle Ages*, is still valuable, but his *Constitutional History of England*, once a text book, is now obsolete. This shows the author's Whig beliefs, also expressed in the articles he wrote for *The Edinburgh Review*. A third book is his *Introduction to the Literature of Europe in the 15th, 16th and 17th centuries*. He died at Peshurst, Jan. 21, 1859.

Hallam's son, Arthur Henry Hallam, is known for his friendship with Tennyson. He died in Vienna, Sept. 15, 1833, being only 22 years old. In his memory Tennyson wrote *In Memoriam*.

Hallamshire District of Yorkshire. It is the area around Sheffield. One of the divisions into which that city is divided for sending members to Parliament is the Hallam division.

Halle City of Germany. It stands on the Saale, 21 in. from Leipzig and is an important railway junction. It is perhaps chiefly famous for its university, but in the 19th century it became a great industrial centre and new quarters sprang up all around the old town. The university, founded in 1694, possesses a fine range of buildings which include a large library and an observatory. Its medical school is notable. The town's oldest industry is salt mining. Other industries include the manufacture of machinery and confectionery, sugar refining, printing and malling. Pop. 191,600.

Hallé Sir Charles. English musician. Born in Germany, April 11, 1819, he studied music in Paris and elsewhere. In 1848 he settled in London and became a naturalised Englishman. Hallé won a reputation by the concerts he gave in London and by his work for music in Manchester, where he founded the Royal College of Music and conducted a fine orchestra. In 1888 he was knighted and he died, Oct. 25, 1895.

In 1888 Hallé married Wilma Neruda, the widow of Ludwig Norman. She, too, was a German by birth, and having studied music, became one of the leading violinists of the day. Lady Hallé died April 15, 1911.

Hallelujah Hebrew word of praise identical with *Alléluia*. It is a doxology in the synagogues, occurs in the Psalms and in the Jewish hymns and in the Mass (except in times of mourning). It was also in the first Prayer Book of Edward VI. The *Hallelujah Chorus* is part of Handel's *Messiah*. Since 1743 it has been the custom for audiences to stand during its performance.

Halley Edmund. English astronomer. Born in London, Oct. 29, 1656, he was educated at St. Paul's School and Queen's College, Oxford. Interested in astronomy, he went on voyages and journeys with

the object of extending his knowledge of that subject. Having returned to England he wrote on sun spots, magnetism, and other phenomena, and worked with Newton, whilst another interest was surveying to ascertain the nature of the tides. In 1703 he was made Savilian Professor of Geometry at Oxford, and in 1720 Astronomer-Royal at Greenwich. From 1713 to 1721 Halley was secretary of the Royal Society. He died at Greenwich, where he had done valuable work on the planets, Jan. 14, 1742, and was buried at Ico.

HALLEY'S COMET. In 1682 Halley observed the movement of the comet which since then has been named after him. This returned in 1759, in 1835 and in 1910. Its period is therefore 75 or 76 years. Its earlier appearances have been noted since 240 B.C.

Hall Mark Mark stamped upon articles of gold and silver plate. It is done at the Goldsmiths' Hall, London, or other assay offices to indicate the quality of the metal and other details. The hall mark, in addition to showing the standard of quality, indicates the place where the assay has been done by some emblem such as a leopard's head for London. It also gives the date, the year being shown by a letter of the alphabet, and the maker's initials. Plate made between 1784 and 1890 also has a duty mark.

Hallowe'en Scottish name for All Hallows Eve, October 31, the vigil of All Hallows, or All Saints' Day. It is one of many Christian festivals grafted on ancient pagan ceremonies, and its superstitious practices, e.g., divination by nuts, or by mystic midnight rites, are survivals of spirit and nature worship.

Hallstatt Village of Austria. It is on the lake of the same name, 32 in. from Salzburg. The chief industry is the working of the salt mines. Hallstatt owes its main interest to the prehistoric cemetery unearthed in 1846. No fewer than 3000 graves were found and an examination of the articles therein, which were of gold, bronze, iron and amber, showed that their occupants were men and women who enjoyed a fairly high measure of civilisation. They worked the salt mines, grew crops and possessed cattle. Their implements were of iron and the name has been given to the first part of the Iron Age. The early Hallstattian Age is from 850-600 B.C. and the later 600-400 B.C.

Hallucination Apparent perception of an external object which does not exist. It differs from illusion, in which a sensation is misinterpreted. In either case belief in the reality of the object involves delusion. It usually affects sight or hearing or both, and may attend persons who are normally sane, through sleeplessness or other brain derangement. It may also indicate insanity. The seeing of ghosts is best explained as an hallucination.

Halo Term in meteorology applied to the coloured ring, red inside and blue outside, sometimes seen round the sun or moon. It is due to the refraction of light by small ice crystals in cirro-stratus clouds.

In art a halo, or nimbus, is a disc or other symbolic form shown round the head of saints and divine personages.

Halogens Chemical term for the elements fluorine, chlorine, bromine and iodine, which produce salts similar to common salt. These elements form a well-defined series of increasing atomic weights—

19.0, 35.475, 79.916 and 126.932 respectively, and their affinities for other elements increase or decrease in the same order.

Hals Franz. Dutch painter. He was born at Antwerp between 1580 and 1584. His life was spent mainly at Haarlem, where he painted and taught painting and where he died in August, 1666.

One of the greatest masters of portraiture, especially in the realistic and life-like painting of the head and hands, his work greatly influenced the style of the Dutch school of painting. His well-known picture, "The Laughing Cavalier," is in the Wallace Collection, London, and others are in the National Gallery, London. Most of them, however, are in the Netherlands, especially at Haarlem, but there are others in the Louvre, Paris.

Halsbury Earl of. English lawyer. Hardinge Stanley Giffard was born, Sept. 3, 1823, in London, his father, Stanley Loos Giffard, being a writer. He was educated at Merton College, Oxford, and became a barrister. In 1875 he was made Solicitor General in the Conservative ministry, and in 1877 he was elected M.P. for Launceston. In 1885 he was made Lord Chancellor and a baron. He was again Lord Chancellor, 1886-92 and 1895-1905. In 1898 he was made Earl of Halsbury. He died Dec. 31, 1921. He was succeeded by his son, hitherto known as Viscount Tiverton. Halsbury was noted for his physical vigour, which enabled him to live nearly a century, and for his unbending Toryism. He edited *The Encyclopaedia of the Laws of England*.

Halton Village of Buckinghamshire. It is 4 m. from Aylesbury and is one of the centres of the Air Force. A camp was established here in 1917, and this became, as it now is, a training ground for those entering the air force.

Another Halton is a village of Cheshire. It is 11 m. from Chester, on the L.M.S. Rly. Here are the ruins of a castle. Pop. 1250.

Ham Son of Noah. Gen. x. makes him the ancestor of peoples occupying Ethiopia, Egypt and other parts of northern Africa, whom modern ethnologists class as Hamitic, in contrast with Semitic.

Ham Urban district of Surrey. It is about 10 m. to the west of London, lying between Twickenham and Teddington. There is a common at Ham. Near are Richmond Park and Ham House, built early in the 17th century and a seat of the Earl of Dysart. It is famous for its art treasures and its meadows called Ham Walks. Pop. (1931) 2206.

Hamadan Town of Persia. It is 180 m. to the south-west of Teheran and is an important trading centre, as it has been for many centuries. The caravan roads to Bagdad and the Caspian Sea pass through it. There are some manufactures. In April, 1918, the town was occupied by the British. It covers the site of the ancient Ecbatana. Pop. 30,000.

Hamadryad According to Greek mythology, a nymph presiding over and living in a tree. Her life began and ended with that of the tree.

Another hamadryad is a large species of cobra, called also the king cobra. It feeds largely on other snakes.

Haman Character in the Biblical book of Esther. He was the grand vizier of Ahasuerus, king of Persia. He formed a plot to avenge himself on Mordecai

by extirpating the Jewish race. This was exposed by Esther and he was hanged upon the lofty gallows prepared for Mordecai, who succeeded him. His effigy formerly appeared at the commemorative feast of Purim.

Hamble River of Hampshire. It falls into the sea near Southampton where it forms Hambleton Creek. At its mouth on Southampton Water, 5 m. south of Southampton, is a station for flying boats and seaplanes, also called Hamble. In 1931 a flying school was opened here.

Hambleton Viscount. English title borne by the family of Smith. The statesman, W. H. Smith, left a widow who in 1891 was created Viscountess Hambleton. This title was inherited on her death in 1913 by their son, William Frederick Danvers Smith. Born Aug. 12, 1868, he was educated at Eton and New College, Oxford. From 1891 to 1910 he was Unionist M.P. for the Strand division of London and until his death head of the firm of W. H. Smith and Son, the distributors of newspapers. He was known as an oarsman and a benefactor of King's College Hospital. He died June 16, 1928, his title passing to his elder son.

Hambleton is the name of a village in Buckinghamshire.

Hambleton Village of Hampshire. It is 6 m. from Fareham and is famous as the early home of cricket in England. About 1750 the Hambleton Club was formed and this played the game on Windmill and Broad Halfpenny Downs. William Beldham, called Silver Billy, and other famous cricketers of that time were among the Hambleton men.

Hamburg City and seaport of Germany; also a state of the German republic. It stands on the Elbe, 75 m. from its mouth at Cuxhaven and 180 from Berlin. The second largest city in the land, it covers a large area and includes suburbs that were once separate towns. The Bille flows through it to join the Elbe; it is also traversed by canals. Another river, the Alster, has been dammed up to form two lakes, outer and inner, which are a feature of the city. It is connected by railway with all parts of Germany, has a service of electric trains and is an airport.

The city hall and the law courts are fine modern buildings. There is a university, opened just after the Great War, and an institute of tropical medicine. The city has botanical gardens, two observatories, several museums and near, at Stellingen, is Hagenbeck's famous zoological park. The Lombards bridge divides the two Alsters. The Hall of Art contains a collection of modern German pictures. It has a broadcasting station (372 M., 1.5 kW.).

The extensive docks accommodate the largest vessels. They include miles of sheds and quays; near them are the great ship-building and ship repairing yards of one of the world's largest seaports. Part of it constitutes a free port which has an enormous transit trade; the whole is over 6 m. long. Of the many lines that have their headquarters here, the greatest is the **Hamburg Amerika** founded in 1847.

Apart from the shipping which has now recovered from the paralysis of the Great War, Hamburg is a great manufacturing town. Beer, spirits, chemicals and machinery are made. The preparation of foodstuffs is a large industry and others are the refining of oil and sugar.

In the Middle Ages Hamburg was a leading member of the Hanseatic League. In 1540 it was made, and it still is, a free city. In 1815 it joined the German Confederation, in 1866 the North German Confederation, and in 1871 the German Empire. In 1918 it became a state of the new republic. Pop. (1929) 1,143,079.

The state of Hamburg covers 160 sq. m., and includes, in addition to the city, some detached portions of land, several being islands in the Elbe. Cuxhaven, its outpost, and Ritzbüttel are also included. It is governed by a house of burgesses elected by all adults and an executive chosen by the house. Pop. (1929) 1,226,111.

Hameln (or Hamelin). Prussian town in the province of Hanover. It stands on the Weser and dates as a town from the 11th century. Pop. (1925) 25,633. It is chiefly notable as the town of Browning's legend of the Pied Piper, who in 1284 rid the town of a plague of rats. The inhabitants refusing to pay him, he charmed the children of the town to follow him into a door in the Koppelberg hill, whence none returned.

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Hamilton Burgh and market town of Lanarkshire. It is 11 m. from Glasgow and is served by the L.M.S. and L.N.E. Ryrs. Here are barracks, as the burgh is the depot of the Cameronians (Scottish Rifles). The chief industry is coal mining and around are market gardens. Pop. (1931) 39,400.

Near the town is a park of 1500 acres, in which Hamilton Palace, the residence of the Dukes of Hamilton, stood until it was demolished. The park is used as a race-course. The burgh of Netherthorn stood here before 1800. Hamilton was then called Cadzow, and there are still ruins of Cadzow Castle. In Cadzow Park is a famous herd of white cattle.

Hamilton City and port of Ontario, Canada. It stands on Burlington Bay, a branch of Lake Ontario, 39 m. from Toronto. It has stations on the two great railway lines, the C.N.R. and C.P.R., and from here electric railways radiate. Iron and steel goods are made and other industries include the making of furniture, textiles, etc. There is also some shipping to other parts of the Great Lakes. Electrical energy is obtained from water power. Burlington Beach is a strip of land in front of the city. It is used as a pleasure resort, whilst a canal passes through it. Pop. (1931) 154,914.

Hamilton Capital of the Bermudas. It is on Great Bermuda, and has a good harbour, although somewhat difficult of approach. Since prohibition was introduced in the United States it has become popular with Americans. Pop. 3000.

Hamilton Town of New Zealand. In North Island, it is 86 m. from Auckland. It is served by a railway line and is the centre of a farming district. Pop. 17,350.

Hamilton Town of Victoria. It is 198 m. by rail. It is the centre of a large grazing district where butter is made. Races are held here. Pop. 5280.

Another Hamilton is a town of New South Wales. It is 75 m. from Sydney. Pop. 6000.

Hamilton Alexander. American statesman. Born in the West Indies, Jan. 11, 1757, he was the child of a Scottish father and a native mother. He was educated in New York, became a lawyer and was assistant to Washington during the War of Independence. In 1782 he was chosen a member of Congress and he had a large share in framing the constitution of the country. He was the leader of the party that stood for a strong central government and he put forward his ideas in *The Federalist*. From 1789 to 1795 he was Secretary to the Treasury and did a great work in organising the country's finances. In 1799, Washington being dead, he was appointed to command the army raised to resist a threatened French invasion. On July 11, 1804, Aaron Burr wounded him in a duel and he died on the following day.

Hamilton Duke of. Scottish title, the senior of its kind. Sir James Hamilton of Cadzow in Lanarkshire married a daughter of James III., and their son was made Earl of Arran in 1503. His son was regent of Scotland and was made Duke of Châtelleraut by the King of France in 1549. His son, John, was made Marquess of Hamilton in 1599. James, the 2nd marquess, was made a duke in 1643. In 1648 he led an army into England to help Charles I., but was defeated at Preston, and in 1649 was executed. His brother, William, the 2nd duke, was killed at the Battle of Worcester in Sept. 1651, and the title became extinct. In 1660, William Douglas, Earl of Selkirk, having married the heiress of the last duke, was made Duke of Hamilton, and this title still remains with the family of Douglas-Hamilton.

James Douglas, who in 1698 succeeded to the dukedom, was allowed to take precedence from 1643. He ranks therefore as the 4th duke. He was made Duke of Brandon in 1711, and was killed in a duel with Lord Mohun, as described by Thackeray in *Esmond*. James, the 6th duke, married Elizabeth Gunning. James, the 7th duke, inherited the title of Marquess of Douglas. Alexander, the 10th duke, was ambassador at St. Petersburg. He rebuilt Hamilton Palace and filled it with works of art. William, the 11th duke, married a daughter of the Grand Duke of Baden and spent much of his time at the court of Napoleon III. His son, Alexander, the 12th duke, died without sons in 1895, when a kinsman, Alfred, inherited the titles and the estates in Lanarkshire. Other estates, including the island of Arran with Brodie Castle, passed to the daughter of the 12th duke, who later became Duchess of Montrose.

The duke's seat is now Dungavel, Lanarkshire. His eldest son is the Marquess of Clydesdale, a noted boxer, elected Unionist M.P. for East Renfrewshire in 1930.

Hamilton Emma, Lady. Mistress of Lord Nelson. She was born, it is said, at Great Neston, in Cheshire, April 26, 1765, the daughter of a labourer, and was known as Emily Lyon. She lived for a time at Hawarden and then went to London as a servant. She had several lovers, and in 1781 became the mistress of the Hon. Charles Grey, leaving him in 1786 for Sir William Hamilton.

British minister at Naples. In 1791 Hamilton married her and she became very friendly with the Queen of Naples. At Naples in 1793 she met Nelson, but their intimacy did not begin until 1798. Their child, Horatio, was born in 1801. Left a widow in 1803, Lady Hamilton's extravagance soon landed her in debt and in prison. She died Jan. 15, 1815.

Lady Hamilton's beauty attracted the attention of George Romney, who painted her more than 20 times. Sir Joshua Reynolds also painted her. A number of books have been written about her.

Hamilton Sir Ian Standish Monteith. British soldier. Born at Corfu, Jan. 16, 1853, the son of a soldier, he was educated at Cheam and Wollington College, entering the Gordon Highlanders in 1872. In Afghanistan in 1878 he began a long career of active service. He was wounded and taken prisoner at Majuba in 1880, and was later in Egypt and Burma, as well as in the Chitral and Tirah campaigns on the Indian Frontier. In 1899 he was Chief of the Staff in Ladysmith, and served against the Boers to the end of the struggle, either as Chief of the Staff to Kitchener, or in command of a force during the guerilla warfare. From 1902 to 1915, he was, in succession, Quartermaster-General, Commander of the Southern District, Adjutant-General and Inspector-General of Oversea Forces. In 1904-05 he was with the Japanese armies in Manchuria.

In 1915 Hamilton was appointed to the command of the force that attacked the Turks in Gallipoli and he conducted this costly campaign almost to the end. He retired from the army in 1920, being then a general and the recipient of numerous honours.

Hamilton is a graceful writer in prose and verse, and by no means a soldier of the conventional type. His books include *A Staff Officer's Scrapbook* and *A Gallipoli Diary*.

Hamilton Patrick. Scottish martyr. Born in Lanarkshire about 1504, he was descended through his mother from King James II. He was sent to Paris for his university education, and at Louvain he learned something of the reformed teaching. Having returned to Scotland, he was accused of heresy, but escaped punishment by going to Germany, where he was influenced by Luther. He went back to Scotland in 1527 and was soon taken and put on trial for heresy. He was found guilty and on Feb. 29, 1528, was burned at St. Andrews. In Germany, Hamilton wrote *Loci Communes*, or *Patrick's Places*, a statement of his religious faith.

Hammerfest Town and port of Norway. It is on an island in the north of the country, 675 m. from Trondheim. There is a harbour and the port is a centre of the whale fishery. It exports cod liver oil and other products of the northern seas, and has the reputation of being the most northerly town in the world. Pop. 2700.

Hammerhead Large bird found in Africa. It belongs to the stork family, is brown in colour and is about 2 ft. long. It is found near lakes as it feeds on fish and frogs. The feathers on the head give it a certain resemblance to a hammer, hence its name. It is also called hammerkop and umbrette.

Hammersmith Borough of the county of London. To the west of the city, it has the Thames on its southern side and here a bridge crosses

the river. It adjoins Chiswick and Kensington, and part of it is called West Kensington. The borough includes Wormwood Scrubs with the prison. The Lyric Theatre is famous for its association with the revival of *The Beggar's Opera* and the performance of other successful plays. In the borough are Olympia, a vast building used for exhibitions and the like, and the White City at Shepherd's Bush. Pop. (1931) 135,621.

Hammond Walter Reginald. English cricketer, born at Dover, June 3, 1903. Having become a professional cricketer he played first for Gloucestershire. His performance in 1927, both as a batsman and bowler, made his reputation and he became one of the leading cricketers in England. He visited Australia and in 1930 played in the test matches in England.

Hammurabi King of Babylon. The sixth monarch of the 1st dynasty of Babylon and the son and successor of Sin-muballid, he has been identifiable with Amraphal, King of Shinar (Gen. xiv.). He threw off Chedorlaomer's supremacy, dominated the Sumerian and Akkadian city states, and made Babylonia a single monarchy. His brilliant reign of 43 years was marked by much building and canal construction; he left valuable letters, and a Semite code of laws. His date is about 2100 B.C. A stele in the British Museum bears his sculptured representation.

Hampden Name of two villages in Buckinghamshire. Great and Little. Great Hampden is three miles from Missenden and in its church is a memorial to John Hampden who was buried here. Near is Hampden House, once his residence. This was rebuilt in 1754 and is now the seat of the Earl of Buckinghamshire.

The title of Viscount Hampden has been borne since 1884 by the family of Brand. Henry Bouverie William Brand was a Liberal M.P. from 1852 to 1884. From 1872 to 1884 he was Speaker of the House of Commons. He died March 14, 1892.

Hampden John. English statesman. Born at Hampden in 1594, he was a son of William Hampden, and was related through his mother to Oliver Cromwell. He was educated at Magdalen College, Oxford, and studied law. In 1621 he was elected to the House of Commons for Great Ouse, then for Wendover and then for Buckinghamshire. In 1627 he was imprisoned for refusing to contribute to a forced loan, but his fame rests on his opposition to Ship-Money. He refused to pay this tax, and in the end won his case. Hampden was one of those who impeached Strafford and one of the five members whom Charles I. tried to arrest. He raised a regiment when the Civil War began and led it at Edgehill and in other fights. On June 18, 1643, he was wounded at Chalgrove Field, and died on June 24, 1643.

Hampshire County of England. Its full name is the county of Southampton; it is in the south of the country with a coastline on the English Channel. It includes the Isle of Wight, which, however, has its own county council. The total area is 1623 sq. m. Winchester is the county town, but Southampton, Portsmouth and Bournemouth are larger. Other towns are Aldershot, Basingstoke and Eastleigh, and there are several interesting market and other towns, Alton, Fareham, Petersfield, Stockbridge and Andover among them. Lymington, Havant and Bosham

are small seaports. Portsmouth Harbour is the headquarters of the navy; Southampton Water is a great commercial harbour.

The rivers include the Itchen, Test, Hamble, Avon and Lymington. There are Downs in the north and around Winchester; sheep farming is one of the chief industries. The county contains the New Forest and remains of Wolmer and other forest areas. Places of historic interest, in addition to Winchester, are Beaulieu and Christchurch, Basing House and Hurst Castle. It is served by the Southern and G.W. Rlys. Hampshire is famous for its early association with the game of cricket, and is now a first class county. Pop. (1931) 1,014,115.

The Hampshire Regiment was formerly the 37th and 67th Foot. These were raised in 1702 and 1758 respectively and have since had a long and honourable record of service. The depot is at Winchester.

Several British warships have been named the Hampshire. One existed in the time of the Commonwealth. Another, a cruiser of 11,000 tons, was lost off the Orkneys on June 5, 1916. Lord Kitchener and 600 officers and men were drowned.

Hampstead Borough of the county of London. It lies to the north-west of the city, about 6 m. away. The borough includes, in addition to Hampstead proper, Haverstock Hill and West Hampstead stretching along the Edgware Road. Here are Westfield College for women, Hackney and New College, a theological institution, and University College School.

In old Hampstead some delightful houses still stand. A notable thoroughfare is Well Walk, named when there was a spa here. At one time Keats lived therein; another house he occupied, Lawn Bank, is now a memorial to him. To the north of Hampstead Heath is the Hampstead Garden Suburb. This was laid out in 1907, and is one of the most successful enterprises of its kind. The land is owned by a trust. Pop. (1931) 88,914.

Hampstead Heath Public recreation ground in the north of London. On high ground, about 430 ft. above sea level, it covers altogether some 600 acres, part of it being known as Parliament Hill. It was once noted for its fairs and is still a popular resort on bank holidays. On or near it are the famous Inns known as The Spaniards, Jack Straw's Castle and The Bull and Bush.

Hampton Urban district of Middlesex. It stands on the Thames, 15 m. from London, on the S. Rly., and contains Hampton Court. A ferry goes from here to the other side of the river. A house here is called Garrick's Villa, because the great actor lived in it for a time. Pop. (1931) 13,053.

About 3 m. from Hampton is **Hampton Wick**, also an urban district. The chief building is the church of St. John the Baptist. A bridge over the Thames connects Hampton with Kingston. Pop. 2957.

Another Hampton is **Hampton-in-Arden**, Warwickshire. This is 102 m. from London, on the L.M.S. Rly. Pop. 1100.

Hampton Court Palace on the Thames near London. It is at Hampton, 15 m. from London, and is one of the finest buildings of its kind. It was erected by Cardinal Wolsey and enlarged by Henry VIII., who took it from his fallen minister. Later, further additions

were designed by Wren. It contains over 1000 rooms. George III. was the last king to reside here. Parts of the palace are occupied as residences by private persons, but the larger apartments are open to the public. These include the great hall, the haunted gallery and the chapel royal. Other interesting features are the gateways, the great vine, the old clock and the maze. There is a valuable collection of pictures. The park covers 600 acres and there are over 40 acres of beautiful gardens. Adjacent is Bushey Park.

In 1604 the **Hampton Court Conference** was held here. This was convened by James I. in order to compose the differences between the Anglican clergy and the Puritans. It had no definite result.

Hamsun Knut. Norwegian novelist. Born Aug. 4, 1859, he became a clerk and then tried various other occupations, farming and teaching among them. He went to the United States, but was equally unsuccessful. In 1888 his first novel, *Sult*, was published in a Danish magazine, and this made his reputation. He wrote other novels which have been translated into English and other languages. The English titles of some are, *Shallow Soil*, *Growth of the Soil*, *The Women at the Well* and *Mysteries*. In 1920 he received a Nobel Prize.

Han River of China. A tributary of the Yang-tse Kiang, it is about 1300 m. long. It rises in the mountains in the province of Shensi and flows to join the Yang-tse at Hankow. It is navigable for large vessels for about 450 m., and for small ones for almost the whole of its course.

Hand prehensile extremity of the fore limb. Beyond the eight carpal bones of the wrist are the five metacarpal bones of the palm, and 14 phalanges serving one two-jointed thumb and four three-jointed fingers. The hands are a fundamental distinction between mankind and the lower animals. They arose from withdrawing the fore limbs from the office of support and locomotion, leaving this to be discharged solely by the hind limbs, and endowing them with the faculty of grasping by means of perfectly mobile fingers and opposable thumbs.

Hand Unit of length, used in the measurement of horses. Originally roughly the breadth of the palm of a man's hand, it has been standardised at four inches.

Handel George Frederick. English musician. Born at Halle in Lower Saxony, Feb. 23, 1685, he was the son of a surgeon there. Despite parental opposition, he studied music and after a time became organist of the church in his native town. In 1703 he joined an orchestra at Hamburg and there his first opera, *Amira*, was composed. After three years in Italy, he became, in 1710, chapel master to George, Elector of Hanover, and in 1712 he settled in England, two years before his master became king. He produced *Rinaldo* in London, and in 1713 his famous Utrecht *Te Deum* appeared. He became organist to the Duke of Chandos at Edgware and in 1726 was naturalised. From then until 1750 he was busy composing operas and oratorios. In 1751 he became blind and he died April 14, 1759. He was buried in Westminster Abbey.

Handel is best known by his oratorios. His masterpiece, *The Messiah*, was produced in Dublin in 1742. *Esther*, *Alexander's Feast*, *Samson*, *Judas Maccabaeus* and *Jephtha* are

other famous pieces. He composed much other music, sacred and secular, the latter including operas written for the Royal Academy of Music. For the coronation of George II. he composed *Zadok the Priest*, and he wrote *Anthems and Lessons* for the Duke of Chandos.

Handicap Method of treating competitors in a race or other sporting event so that each shall have a fair chance of success. The method of handicapping varies with the kind of sport. In horse racing the horses must carry certain weights, these being fixed by officials of the Jockey Club and other organisations. In golf the weaker competitors are given a certain number of strokes. In lawn tennis the players owe or receive 15 points or some other score. In foot races and billiards a handicap takes the form of a start to the weaker competitor.

Handsworth District of Yorkshire (W.R.). It is 4 m. from Sheffield. Here are collieries, nursery gardens and quarries.

Another **Handsworth** is a district of Birmingham. It is in Staffordshire, to the north-west of the city, and until 1911 was a separate urban district. It is an industrial area. Handsworth College is a centre for training Wesleyan ministers.

Hangar Large shed used for housing aircraft. It may be of a temporary or permanent character. Large hangars often of concrete construction form an important part of the buildings of an aerodrome.

Hanging Gardens Gardens at Babylon, one of the Seven Wonders of the World. They were arranged in terraces, the highest being 300 ft. above the plain, and contained halls and other buildings, placed amidst luxuriant tropical flowers and trees. It is said that they were laid out by Semiramis, but it is more probable that Nebuchadnezzar was responsible for them.

Hankey Sir Maurice Pascal Ales, English administrator. Born April 1, 1877, he was educated at Rugby and entered the marines. In 1902 he became an official in the Naval Intelligence Department at the Admiralty and was soon associated with the Committee of Imperial Defence. In 1912 he became its secretary, and in 1916 Secretary to the War Cabinet. In 1919, when a secretariat for the cabinet was formally established, he was placed at its head. In 1916 he was knighted and in 1919 he was awarded £25,000, presumably for his work at the Peace Conference.

Hankow Treaty port of China. It stands on the north bank of the Yangtze-Kiang, where it is joined by the Han, about 600 m. from its mouth. It is connected by railway with Peking nearly 800 m. away. There is a harbour with accommodation for large steamers, but they can only ascend the river during the summer.

Opposite on the south bank of the Yangtze is Wuchang and across the Han is Hanyang; through these cities much of the commerce of the centre of the country passes. In Hankow the British, French and Japanese have settlements, and near it are some of the richest deposits of iron ore in the world. The population of the three cities is estimated at 1,584,000.

Hanley District of Stoke-on-Trent, once a separate borough and market town. It is 18 m. from Stafford and 148 m. from London, and is reached by the L.M.S. Rly. The main industry is the manufacture

of pottery. In 1910 Hanley was made part of the city of Stoke-on-Trent (*q.v.*).

Hannah Wife of Elkanah and the prophet Samuel's mother (1. Sam. i.-ii.). Receiving her son in answer to prayer, she dedicated him to the service of the temple under the high priest, Eli; her song is a prototype of the Magnificat.

Hannibal Carthaginian soldier and one of the world's great captains. A son of Hamilcar Barca, he was born about 247 B.C. His boyhood and youth were passed partly in Spain in military surroundings, and there he learned that hatred of Rome that dominated his life. When, in 229, Hamilcar died, his young son was hailed as his successor, and soon entered upon his wonderful career. He brought parts of Spain under the authority of Carthage and took Saguntum in 218, thus bringing on a war with Rome.

In the same year Hannibal set out for Italy. He crossed the Pyrenees, defeated a Roman army in Gaul and made his memorable passage of the Alps, which cost thousands of lives and himself the loss of an eye. He won a first victory over the Romans at Ticinus, and then a much greater success at Trebia. Marching towards Rome, he almost annihilated one great Roman army at the Trasimene Lake (217) and another at Cannae (216). In 216 he passed a memorable winter in Capua, from which he emerged to carry on a predatory and indecisive warfare that lasted for nearly ten years. Victory seemed impossible and his skill avoided defeat until the disaster at the Metaurus in 207. His brother, Hasdrubal, in that year succeeded in reaching Italy with an army, but before he could join the other Carthaginian force he was defeated and killed in battle. His head was cut off and thrown into the camp of Hannibal, who thus learned his fate. For four more years Hannibal carried on the hopeless struggle and then in 203 returned to Carthage which was being invaded by the Romans. At Zama he met his old enemy, Scipio, in battle, but this time Hannibal was utterly beaten. He left his country as an exile and lived for a time in Asia Minor. The Romans demanded his surrender, to avoid which he took poison in 183.

Hanno Carthaginian sailor. He lived about 500 B.C. and is famous for the voyage he made along the west coast of Africa. He wrote an account of this which has been translated into English and is one of the earliest extant writings of its kind.

Another **Hanno**, who flourished about 250 B.C., is known as the opponent of the party in Carthage led by Hamilcar and his sons. His policy was to keep at peace with Rome. Hanno was governor of Libya where his rule led to serious trouble.

Hanoi City and river port of Asia, the capital of Tongking and of French Indo-China. It stands on the Song-koi, or Red River, about 80 m. from its mouth. It is laid out on modern lines with all modern conveniences. There is a university. Near the city is the Great Lake, on the side of which is built a Buddhist temple with a famous statue of Buddha. The city is well served by railways and has some manufactures. Small steamers can reach it. The river is here crossed by a bridge a mile long. Pop. 103,000.

Hanotiaux Albert Auguste Gabriel, French statesman and scholar. Born Nov. 19, 1853, he became an official in the foreign office. From 1886 to 1889

he was a member of the Chamber of Deputies. From 1894-98, with a brief interval in 1895-96, he was Minister for Foreign Affairs, his policy being one of friendship with Russia and advance in Africa. He resigned after the French rebuff at Fashoda and devoted the rest of his life to literary work. In 1897 he was elected to the Academy.

Hanotaux has written some monumental works, including his *Histoire de la France Contemporaine*, which has been translated into English, and his *Histoire de la Guerre de 1914* in 18 volumes. His *Histoire de la Nation française* is in 15 volumes; he wrote a notable book on Richelieu.

Hanover District of Germany, once a separate kingdom. It is now a province of Prussia, having Hanover as its capital, and covers 14,900 sq. m. The duchy of Lüneburg-Cello was ruled in 1692 by Ernest Augustus, who was made an elector as a reward for helping the Emperor Leopold I. and styled himself Elector of Hanover, this being the name of his capital. Hanover remained an electorate until the dissolution of the Empire in 1806. In 1814 it was made a kingdom. Its rulers from 1714 to 1837 were also Kings of Great Britain and Ireland.

In 1837 Hanover was separated from Great Britain and Ernest Augustus, Duke of Cumberland, became the king. He died in 1857 and was succeeded by his son George V. In 1866 George took the side of Austria in the war against Prussia. The Prussians, therefore, invaded Hanover and annexed it. The king and then his son, the Duke of Cumberland, maintained their rights to the throne, but these were never recognised, and Hanover has since remained part of Prussia.

Hanover Town of Germany, once the capital of the kingdom of Hanover. It is 116 m. from Hamburg and 163 from Berlin, and is an important railway junction, standing at the junction of the rivers Leine and Imme. It is also an airport and is connected with the Rhine by a canal.

The town consists of an old town, a new town and suburbs around them. There are some fine squares and beautiful public gardens, including a zoological garden. The opera house and several theatres may be mentioned, and there is a hall seating 6000 people. Near the town are some extensive woods owned by the municipality, and Herrenhausen, formerly the residence of the rulers of Hanover. The suburbs include Calenberg and Linden. Machinery, rubber, textiles and chemicals are the chief industries; also printing. It has a broadcasting station (566 M., 20.25 kW.). Pop. (1925) 425,274.

Hansard Name given to the official reports of the proceedings of Parliament. In 1803, Thomas Curson Hansard, a printer, began to issue accounts of the debates. After his death in 1828 the work was continued by his family, and in 1857 a grant of money was made to help them in the work.

In 1895 the Hansards ceased to do this work, which was taken over by the staff of *The Times*. In 1908 this arrangement ended and the debates are now reported by a staff engaged by the Government. The name Hansard is, however, retained for the volumes that contain the debates and speeches. A verbatim report of the proceedings of each sitting is issued each day that Parliament meets.

Hanseatic League Union of towns, chiefly in the north of Europe, for trading purposes.

In the 12th century, in some of the cities that took the lead in developing trade with foreign countries, merchants formed themselves into a hansa or association for the purpose of securing privileges. Later, two or more of these hansa united themselves together for the same purpose and in this way the great Hanseatic League began. In forming this league Lübeck, Hamburg and Bremen took the leading part, and in the 14th century they had made it into a great confederation, equal in power, and more than equal in wealth, to many of the European states. Most of the seaports on the Baltic and the eastern side of the North Sea were members. Its headquarters were at Lübeck.

The 14th century, when the Baltic was a great highway of trade, was the most flourishing period of the League's history. Its membership meant valuable privileges for merchants in England and other lands, not the least being protection, for the League kept an army. From 1340 to 1370 it carried on a war with Denmark, in which it was victorious. In the 15th century, the power of the League declined. Various causes contributed to this, one being the growth of nationality. The discovery of America was another blow, and the Thirty Years' War brought the League to an end. For long after, however, the towns of the League were called Hansa Towns.

Hansom Name of a type of cab now

J. A. Hansom, a Yorkshireman, who registered the first one as a patent. The earliest hansom had the driver's seat at the side and was fitted with two enormous wheels. Later the seat was placed at the back.

Hanway Jonas. English philanthropist. Born at Portsmouth, Aug. 12, 1712, he entered business at Lisbon. Later he was a merchant in Russia and Persia. He settled in London and was from 1762 to 1783 a civil servant. He died Sept. 5, 1786. Hanway was the first man to carry an umbrella in London; he founded a hospital for fallen women, and attacked the habit of drinking tea.

Hanwell District of Middlesex, part of the borough of Ealing, and 7 m. from London. The Brent and the Grand Union Canal flow through the district which includes Ellthorne.

Hanworth District of Middlesex. It is 16 m. from London, and its station is Feltham on the S. Ry. Here is the London Air Park.

Hapsburg Name of great European family. It is taken from a castle near the union of the Aar and the Rhine, where the early Hapsburgs lived. They were counts, and in 1273 one of them, Rudolph, was chosen German King. He secured Austria and Styria, and his descendants were dukes and then archdukes of Austria. Rudolph's son, Albert, was German King, as was another member of the family, Frederick, but only for short periods.

In 1438 Albert, Archduke of Austria, a descendant of Rudolph, was chosen German King. He had just inherited by right of his wife the kingdoms of Bohemia and Hungary, and with Austria and the duchies associated with it he ruled over a fairly extensive territory. From this time until 1806, the Hapsburgs were German kings and Roman emperors, though they were descended not from Albert but from a relative, Frederick, who became German King in 1440.

Frederick's son was Maximilian I., who was succeeded by a grandson, Charles V. Charles had a brother, Ferdinand, who became King of Bohemia and Hungary, and who succeeded as emperor on his brother's abdication. From this time the Hapsburgs were divided into two branches, the Austrian Hapsburgs descended from Ferdinand and the Spanish Hapsburgs descended from Charles's son, Philip II. The Spanish Hapsburgs became extinct when Charles II. died in 1700; the Austrian Hapsburgs, when Charles VI. died in 1740.

The later Hapsburgs are descended from the marriage of the Empress Maria Theresa, the daughter of Charles VI., and Francis, Duke of Lorraine, and are sometimes called the house of Hapsburg-Lorraine. Francis II., a grandson of Maria Theresa and Francis, resigned the imperial crown in 1806, and the Holy Roman Empire came to an end. In 1804 he had declared himself Emperor of Austria, and his descendants, notably Francis Joseph, kept this dignity until 1918, being also Kings of Hungary and Bohemia and until 1859 having lands in Italy. The last emperor was Charles, who abdicated in 1918 and died in 1922, leaving his son, Francis Joseph Otto, as head of the house.

Hara-Kiri Japanese practice, of self-disembowelment. As an honourable atonement for wrongs done by nobles and officials, it was formally recognised in the 14th century and was effected ceremonially with a jewelled dagger sent by the Mikado. For centuries about 1500 such suicides, half of them voluntary, occurred annually. Obligatory hara-kiri ceased in 1868; the voluntary form remains. General Nogi observed it, his wife simultaneously cutting her throat, when the Mikado Mitsuhiro died in 1912.

Harbin Town and river port of Manchuria. It stands on the Sungari River, 325 m. from Mukden and is a junction on the Chinese Eastern Rly. It is a treaty port and has an international settlement. Pop. 253,000.

Harbour Stretch of water where ships can anchor in safety. There are natural harbours and artificial harbours. The best natural harbours are found where the sea penetrates the land by a somewhat narrow entrance, as is the case with Sydney and Cork harbours, which are among the finest in the world. The entrance to New York makes a fine natural harbour; other good examples are Milford Haven and Portsmouth. The mouths of rivers may make harbours, but these are less protected than are land-locked arms of the sea and are more liable to be silted up with sand or debris.

Artificial harbours are made in suitable places by the construction of breakwaters and other works of that kind, some of these being marvels of engineering skill. Dover, Southampton and Buenos Aires are examples. Every civilised maritime country has harbours of this kind, constantly being improved to accommodate larger and larger vessels. Many small harbours which made prosperous seaports are now useless because they cannot accommodate the larger vessels of to-day.

A modern harbour is equipped with docks of all kinds and appliances for expediting the handling of cargo. Some harbours, those at Dover, Rosyth and Cherbourg, for instance, have been built for naval purposes.

In most large ports, such as London, Liverpool and Glasgow, the harbour is owned and managed by a special authority appointed for that purpose. In other ports the docks belong

to a railway company, Southampton being an example. In some small ports they are the property of the local authority.

Harbour Grace Town and port of the shores of Conception Bay, in the east coast of the island, it has a harbour of considerable size. Here is a Roman Catholic cathedral. It is connected by railway with St. John's. Pop. 3825.

Harcourt Viscount. Title held by the family of Harcourt. The first viscount was Simon Harcourt, who was made Lord Keeper of the Great Seal in 1710. He was made a baron in 1711 and a viscount in 1721. He died July 23, 1727. His son, Simon, the 2nd viscount, was made an earl in 1749, and was Lord Lieutenant of Ireland, 1772-77. When he died in 1777 the titles passed in turn to his two sons. When, in 1830, William, the 3rd earl, who was a distinguished soldier, died, the Harcourt titles became extinct.

In 1916 the title of Viscount Harcourt was revived for Lewis Vernon Harcourt. Born Feb. 1, 1863, he was the elder son of Sir William Harcourt who had inherited the family estates, including the manor house of Stanton Harcourt and Nuneham Park, both in Oxfordshire. The former had been a family residence for 600 years. Lewis Harcourt was an M.P. from 1904 to 1916. From 1905-10 he was First Commissioner of Works, and from 1910-15 Secretary for the Colonies. He died Feb. 24, 1922, leaving an only son to inherit his title.

Harcourt Sir William. English statesman. William George Granville Venables Vernon Harcourt, born Oct. 14, 1827, was a grandson of Edward Harcourt, Archbishop of York. He went to Trinity College, Cambridge, and became a barrister. His powerful intellect soon showed itself in his contributions to *The Saturday Review* and in the letters which, signed *Historicus*, he wrote to *The Times*. From 1867 to 1877 he was Whewell Professor of International Law at Cambridge.

Harcourt, true to the Whig creed of his family, joined the Liberal party, and in 1868 was elected M.P. for the city of Oxford. From 1880 to 1895 he represented Derby, and from 1895 to 1904 a division of Monmouthshire. In 1873-74 he was Solicitor General and from 1880-85 was Home Secretary under Gladstone, whom he followed when Home Rule split the Liberal party. In 1886 he was Chancellor of the Exchequer for a few months, and he returned to that position in 1892. In 1894 he succeeded Gladstone as leader in the House of Commons, but not, to his disappointment, as Premier. He was responsible for the introduction of the death duties. He left office in 1895 and led the party in opposition until 1898, when he resigned; but he kept his seat in the Commons until his death, Oct. 1, 1904. In his later years he lived at Nuneham, near Oxford, the old seat of the Harcourts, which he inherited from a kinsman. He left two sons, Lewis (q.v.), created a viscount, and Robert. His life has been written by A. G. Gardiner.

Although a thorough aristocrat, Harcourt became more radical in his political opinions as he advanced through life. A man of commanding presence, he was recognised as one of the first debaters of his time; he had an equally high reputation as a wit.

Hardanger Fjord or inlet of the coast of Norway. It extends for about 70 m. inland, Vik being at its head, and

has a branch which goes to Odde. The fjord is much visited by tourists who are attracted by the wonderful mountain and other scenery. Near is the waterfall called the Vöringsos.

Hardie James Keir. Scottish politician. Born April 15, 1856, he became a coal miner in Lanarkshire. In 1880 he was chosen secretary of a trade union there, and he soon appeared as an ardent socialist. From 1882-86 he edited *The Cumnock News*, and from 1900 to 1915 *The Labour Leader*. In 1892 he entered the House of Commons as M.P. for South West Ham. He lost his seat in 1895, but in 1900 he was elected for Morthy Tydfil, which he represented until his death, Sept. 26, 1915. Hardie is best remembered, perhaps, as the founder of the Independent Labour Party.

Harding Warren Gamaliel. American president. The son of a doctor, he was born in Ohio, Nov. 2, 1855. He started life, after an education in a local school and college, as a schoolmaster, but soon became a printer. In 1884 he became the owner of *The Marion Star* and was soon an influential person in that town. He was a member of the Senate of Ohio, 1900-04, and was Lieutenant-Governor of the State, 1904-06. As a republican he was elected to the Senate of the U.S.A. in 1914, and he became prominent as an opponent of President Wilson's policy in the early days of the World War. In 1920 Harding was nominated for the presidency and he won a signal victory over his Democrat opponent. The chief event of his term of office was the calling of the Washington Conference, but he died before the expiration of his four years, Aug. 2, 1923.

Hardinge Name of a noted Kentish family. Henry Hardinge, born at Wrotham, March 30, 1785, became a soldier and served in the Peninsular War. He then turned to politics and in 1820 was elected an M.P. In 1828 he was made Secretary for War, and in 1830, and again 1834-35, he was Chief Secretary for Ireland. In 1841-44 he was again Secretary for War. From 1844-48 he was Governor-General of India where, taking an active part in the campaign, he was responsible for the war against the Sikhs and the annexation of the Punjab. In 1852 he succeeded Wellington as Commander-in-Chief of the British army. He died Sept. 24, 1856.

In 1816 Hardinge was made a viscount and the title is still held by his descendants. Charles Hardinge, a younger son of the 2nd viscount, entered the diplomatic service in 1880. In 1904-06 he was ambassador at St. Petersburg, and 1906-10 was Under-Secretary at the Foreign Office. From 1910 to 1916 he was Viceroy of India, and in 1910 was made Baron Hardinge of Penshurst. When he left India he resumed his former position at the Foreign Office, remaining there until 1920, when he became ambassador in Paris, a post he vacated in 1922.

A railway bridge across the Ganges at Sara, opened in 1917, is named the Hardinge Bridge.

Hardingstone Village of Northamptonshire. It is about a mile south of Northampton. Here is one of the crosses erected by Edward I. to mark the resting place of his wife's body on its way to London. On Hardingstone Fields the Battle of Northampton was fought in 1459.

Hard Labour Particular kind of imprisonment. In Great Britain, under certain conditions, judges can sentence those convicted of crime to a term

of imprisonment with hard labour. This means solitary confinement and the discharge of some heavy task, making sacks or picking oakum. This lasts for the first 28 days of the term of imprisonment; after that time unless they are unruly, the prisoners are given easier tasks, similar to those given to prisoners who are not sentenced to hard labour.

Hardwick Hall Seat of the Duke of Devonshire. It is in Derbyshire, 6 m. from Chesterfield, and is reached from Rowtham station on the L.M.S. Ry. It was built by Elizabeth, Countess of Shrewsbury, about 1600, and from her it passed to the Cavendish family who have since retained it. The long gallery is a fine apartment, but the house is chiefly famous for its windows (whence the saying, "Hardwick Hall more glass than wall") and its tapestries. Near are the ruins of an earlier hall.

Hardwicke Cedric Webster. English actor. Born in 1893 at Lye in Worcestershire, he was educated at Bridgnorth. He made his first appearance on the stage in London, and in 1914 was touring in South Africa with F. R. Benson's Shakespearean Company. In 1924 he settled in London and during the next few years made a great reputation. His successes included parts in *Back to Methuselah*, *The Apple Cart* and others of C. B. Shaw's plays, as well as in *The Farmer's Wife*, *Yellow Sands* and *The Barretts of Wimpole Street*. He has also acted for the films in the characters of Nelson and Dreyfus. In 1932 he published an autobiography, *Let's Pretend*.

Hardwicke Earl of. English title borne since 1754 by the family of Yorke. Philip Yorke, the son of a lawyer at Dover, was born Dec. 1, 1690, and became a barrister. In 1719 he was elected M.P. for Lewes, later becoming Solicitor-General and then Attorney-General. In 1733 he was made Lord Chief Justice, and from 1737 to 1756 was Lord Chancellor. From 1757 to 1762 he was a member of the Cabinet without office. He died March 6, 1764. In 1733 he had been made a baron and in 1754 an earl. The title is still held by a descendant, and the earl's eldest son is called Viscount Royston. A younger son of the 1st earl, Charles Yorke, also became Lord Chancellor. Hardwicke ranks as one of the greatest of British lawyers. The **Hardwicke Society**, a debating society of London barristers, is named after him.

Hardwood Name used for the timber of broad-leaved deciduous trees. It includes mahogany, rosewood, ebony and ironwood, as well as oak, walnut and ash. The world's hardwoods occupy 1200 million acres in temperate regions, and 3600 million acres in the tropics.

Hardy Thomas. English writer. Born at Upper Bockhampton, near Dorchester, Dorset, June 2, 1840, he was educated at the grammar school there. He went to London to study architecture, winning prizes from the professional associations and working under Sir Arthur Blomfield. Hardy's real interest, however, was in literature, and he soon began to write. His first novel, *Desperate Remedies*, appeared in 1871 and *Under the Greenwood Tree* in 1872. Then came in quick succession, *A Pair of Blue Eyes* (1873), *Far from the Madding Crowd* (1874), *The Hand of Ethelberta* (1876), *The Return of the Native* (1878), *The Trumpet Major* (1880), *A Laodicean* (1881), *Two on a Tower* (1882),

The Mayor of Casterbridge (1886), *The Woodlanders* (1887), *Tess of the D'Urbervilles* (1891), *Jude the Obscure* (1895), and *The Well-Beloved* (1897). Volumes of short stories are *Wessex Tales* (1888), *A Group of Noble Dames* (1894), and *Life's Little Ironies* (1894).

Hardy was also a poet and published several volumes of verse. His last great work was a dramatic poem of the Napoleonic wars, *The Dynasts*, regarded by some as the supreme achievement of his genius. In 1910 he was given the Order of Merit. He died at his residence, Max Gate, Dorchester, Jan. 12, 1928. He was twice married, but left no children. His *Life* was written by his widow. In 1931 a statue to him was erected in Dorchester.

To Hardy recognition came slowly, but for many years before his death he was regarded as one of the great English writers. His style is remarkably lucid and his powers of description, especially of scenes of rural life, have rarely, if ever, been excelled. Two other qualities help to assure him a place amongst the immortals. One is his philosophy of life and the other the intense local colour which permeates his works. His philosophy is that of fate, indifferent to suffering, caring nothing for either good or evil, playing with the lives of men and women as it will. His books are full of the history and folklore of the country which he knew and about which he wrote with such detail. He calls it Wessex, but to many it is the Hardy country, and its towns and villages can be easily recognised beneath the pseudonyms which he has given them.

Hardy Sir Thomas Masterman. English sailor. Born at Kingston, Dorset, April 5, 1769, he entered the navy in 1793, having previously been in the merchant service. In 1796 began the friendship with Nelson for which he is known. They fought at the Battle of the Nile in the same ship, and at Trafalgar. Hardy was captain of the *Victory* when Nelson, it is said, addressed to him his dying words. In 1806 he was made a baronet, and he held naval commands for the rest of his life. He was Commander-in-Chief in South America and First Sea Lord of the Admiralty before 1834, when he was made Governor of Greenwich Hospital. He died at Greenwich, Sept. 20, 1839.

Hare Name of a family of rodents which includes the rabbits. It is found in most parts of the world except Australia. In Great Britain the word is used for the brown hare (*Lepus europaeus*). It is about 2 ft. long and weighs 7 or 8 lb. It has a short tail, long ears and a cleft upper lip. It runs swiftly by leaps and lives in grassy furrows. The young of the hare is called the leveret. The hare is used in coursing and is also hunted by harriers and beagles.

Hare and Hounds is the name given to runs across country. One or two runners, called the hares, go in front and scatter pieces of paper to show the way they have taken. The others follow the trail and try to catch the hares.

Hare Sir John. English actor. Born in London, May 16, 1841, he was educated at Giggleswick. He began to act in 1865, appearing in T. W. Robertson's comedies, where he was a great success in the parts of old men. In 1875 he undertook the management of the Court Theatre, from 1879-88 he and W. H. Kendal managed the St. James's, and from 1889-95 he controlled the Garrick Theatre. He produced some of A. W. Pinero's dramas, including *The Gay Lord Quex* at the

Globe Theatre in 1899, and played in them personally. Hare had many successes, notably as Spencer Jermyn in *The Hobby Horse* and as Benjamin Goldfinch in *A Pair of Spectacles*. Knighted in 1907, he died Dec. 28, 1921.

Harebell Name of the Scottish bluebell (*Campanula rotundifolia*) as distinct from the wild hyacinth, or English bluebell. The stems are slender, and the lower leaves heart-shaped, the upper being slighter and narrower in shape. The flowers are bell-like and of a clear blue colour, nodding on stiff-angled stems. It is found on heaths and meadow land from July to September.

Harefield Village of Middlesex. It stands on the Colne, 5 m. from Uxbridge. The village is famous because here, at Harefield Place, now pulled down, Alice Spenser, Dowager Countess of Derby (b. 1637), with her second husband, Lord Egerton, lived. She was the Amaryllis of Spenser and for her Milton wrote *Arcades*. Some almshouses founded by the Countess still stand.

Harelip Vertical fissure, present at birth, on one or both sides of the middle line of the upper lip, so called from a fancied resemblance to the hare's cleft lip. It often accompanies the imperfect development of the roof of the mouth called cleft palate, and is amenable to surgical treatment.

Harem Name applied collectively to the quarter assigned to the females of a Mohammedan household and to the occupants. Harems are found in Turkey, Persia and other Mohammedan countries, but the rules about the seclusion of women have been different since the Great War. In former days harems on a magnificent scale were maintained at Constantinople by the Sultan and elsewhere by other Mohammedan princes.

Haresfield Hill or beacon of Gloucestershire. It is one of the Cotswold Hills and is near Gloucester. It commands a magnificent view, and on it the Romans had a watch station. In 1931 260 acres of the beacon became the property of the National Trust.

Harewood Earl of. English title held by the family of Lascelles. In 1796 Edward Lascelles, the head of a Yorkshire family, residing at Harewood House near Leeds, was made a baron, and in 1812 an earl. The title passed from one descendant to another until it came in 1929 to Henry George Charles Lascelles as the 6th earl. He was born Sept. 9, 1882, and educated at Eton and Sandhurst. During the Great War he served with the Grenadier Guards, winning the D.S.O. On Feb. 28, 1922, being then Viscount Lascelles, he married Princess Mary. Their family consists of two sons, the elder bearing the courtesy title of Viscount Lascelles. The earl inherited a large fortune from his uncle, the Marquess of Clanricarde, who died in 1916.

Harewood House, about 12 m. from Leeds, is a fine building dating from the 18th century. The church has some interesting monuments.

Harfleur Seaport of France. It is 6 m. from Havre, and stands near the junction of the little river Lézarde and the Seine. At one time Harfleur was the most important port in Normandy, and as such it was captured by Henry V. in 1415, the English keeping it until 1449. Later the river became choked with sand and the port lost its trade. In the 19th century this was revived by cutting a canal to the Seine. Along this a new harbour

was built, and there is now a certain amount of fishing and shipping. Pop. 2700.

Hargreaves James. English inventor. He was born in Lancashire about 1745 and became a weaver at Standhill near Blackburn. There, about 1764, he invented and built a machine for spinning cotton much more quickly by using eight spindles in a row. He called it the spinning jenny from the name of his wife. It is one of the inventions which have made the great modern cotton industry possible. In 1768 the machine was destroyed by those who found it would decrease the demand for labour, but Hargreaves erected another in Nottingham where he also built a mill. His progress was handicapped by lawsuits due to difficulties about the patents. He died April 22, 1778.

Haricot French word originally denoting a stew of mutton and vegetables, including beans. It is now used for the French or kidney bean. In summer these are boiled in their pods and known as *haricots verts*. In winter, when dried, a day's soaking in cold water is essential to make them tender.

Harlech Town of Merionethshire. It is 10 cm. from Barmouth, on the G.W. Rly. At one time it was a borough and the county town, but now it is a small pleasure resort with golf links and sands. The chief object of interest is the ruined castle built in the time of Edward I. With it is associated the popular song, "March of the men of Harlech."

Harlequin Character in pantomime. Clad in a many-coloured glittering garment, he generally represents Columbine's lover, and is a type of light-hearted gaiety and the enemy of the clown. When masked he is supposed to be invisible.

Harlequins Name of a London Rugby football club. It dates from 1871 and for long had a ground at Wandsworth Common. Since 1908 the club has had its headquarters at Twickenham, on the ground of the Rugby Union.

Harlesden District of north-west London. It is part of the urban district of Willesden and is 7 m. from the city.

Harley Name of the family that once held the earldom of Oxford. Robert, the 1st earl, and his son, Edward, the 2nd earl, made a valuable collection of books and manuscripts. In 1753 this enormous collection, the *Harleian Manuscripts*, was bought for the nation and it is now in the British Museum. The *Harleian Society* at 4 Trafalgar Square, London, W.C., was founded in 1869.

The London thoroughfare called *Harley St.* is named after this family. It runs from Cavendish Square to Marylebone Road, and is famous for its association with the medical profession. In or near *Harley St.* nearly all the leading physicians have their consulting rooms.

Harlington Village of Middlesex. It is 13 m. from London. Henry Bennet, Earl of Arlington, a member of the Cabal, took his title from here. Harlington has now become an industrial area, and is part of the urban district of Hayes and Harlington.

Harlow Town of Essex. It is 24 m. from London, on the L.N.E. Rly. At one time Harlow was a market town and had manufactures of cloth and pottery. In 1928 Roman remains, including those of a temple, were unearthed here. Pop. 2980.

Harmattan Dry wind that blows from the Sahara during the months between October and March. It carries a great quantity of dust to the jungles of the south. It is sometimes called "the doctor," because of its healthy properties.

Harmonica Set of water-filled glass vessels played with a wet finger and called sometimes the musical glasses. The musical glasses were popular in the 17th century and were improved into a determinate instrument, Benjamin Franklin mounted the glasses on a spindle revolving over a trough of water. The word is also used for a toy dulcimer of glass or metal.

Harmonium Musical instrument invented by Alexandro Debain (1809-77). In it vibrators or free reeds, which were tongues of metal, set in periodic motion by air pressure induced by bellows which the player works by treadles, produce the tones of the harmonium. It has one or two keyboards and stops, which, by regulating the air supply, control the quality of tone.

Harmony In popular musical phraseology harmony denotes any sequence of sounds that is pleasing to the ear. Technically it is the science dealing with the concord of sounds of varying pitch, based on counterpoint. Pythagoras was the originator of the science, but the Greeks seem to have made little actual use of their knowledge. The modern development of harmony dates roughly from the Renaissance.

Harmsworth Name of a family famous in journalism. Alfred Harmsworth, a barrister, left seven sons. Two became respectively Viscount Northcliffe (q.v.) and Viscount Rothermere (q.v.). Of the others two became baronets, Robert Leicester in 1918, and Hildebrand in 1922. Sir Robert was Liberal M.P. for Caithness, 1900-18.

Cecil Bishopp Harmsworth, another brother, was a Liberal M.P. from 1906-10 and again, 1911-22. He was Under Secretary to the Home Office, 1915, and to the Foreign Office, 1918-22. Viscount Rothermere's only surviving son, Esmond, was Unionist M.P. for the Thanet division, 1919-29. All the members of the family are interested in newspaper companies.

Harnack Adolf von. German theologian. A son of Theodosius Harnack, Professor of Theology at Dorpat, he was born there, May 7, 1851. He studied under his father, and in 1874 was made Lecturer in Church History at Leipzig. In 1876 he became Professor of Ecclesiastical History at Leipzig; in 1879 at Giessen, in 1886 at Marburg, and in 1889, being now recognised as one of the world's foremost theologians, he was transferred to Berlin. In 1905 he left his professorship to become Director of the Royal Library. He died at Heidelberg, June 10, 1930.

A Protestant holding somewhat advanced views, Harnack wrote a great deal. Some of his books have been translated into English, these including *The History of Dogma*, *What is Christianity?* and *Studies in the New Testament*.

Harold I. King of the English, called the Great, he claimed the throne on his father's death in 1035. It was also claimed by his half-brother, Hardicanute, but Harold, having an English mother, Algiva, thought his claim was the stronger. The country was divided between

them, Harold becoming king of the land north of the Thames, but in 1037, as Hardicanute was a continuous absentee, all England was put under Harold. He reigned until his death at Oxford, March 10, 1040.

Harold II. King of the English. He was born about 1022, being a son of Earl Godwin. About 1046 he was made Earl of East Anglia by his brother-in-law, Edward the Confessor. In 1051 Godwin and his sons were banished; at this time we hear of Harold in Ireland and as ravaging the coasts of England. Soon he returned, and in 1053 succeeded his father as Earl of Wessex. By his wars against the Welsh he won a good deal of fame, and in 1066, on Edward's death, the Witan chose him as king and he was crowned at Westminster.

Some time before this, Harold had visited Normandy, had gone with William on a campaign into Brittany, and may have promised the English crown to the Norman duke. Just after he became king, Harold, King of Norway, and Tostig, a rebellious brother of the English king, invaded England, as did William of Normandy. Harold defeated the Norwegians at Stamford Bridge on Sept. 25, and then led his army south. At Hastings he met the Normans and there, on Oct. 14, 1066, he was killed with two of his brothers. Harold married the widow of a Welsh prince, but his chief love was Edith, called Swan-neck, who bore him five children. She discovered his body on the field of battle and had it buried at Waltham in the church he had built.

Harold Name of three kings of Norway. **Harold I.** reigned from 872 to 930. He was at first a chieftain, one of several, in Norway, but succeeded in driving out the others and bringing the whole land under his own rule. **Harold II.** is unimportant. **Harold III.** was the king who invaded England in 1066 and was killed at Stamford Bridge. Before becoming king in 1046, he had been leader of the Varangian guard at Byzantium. He was called Hardrada, or "stern in council."

Haroun Al-Raschid Caliph of Bagdad. A son of Mohammed Mahdi, he was born in Sept., 763, and when quite young conducted a successful war against the emperor at Byzantium. In 786 he became caliph in succession to his brother, and he reigned until his death in March, 809. Haroun's reign is marked by the murder of the Barmecides and another victory over Byzantium, which again paid him tribute. His real fame, however, is as living at Bagdad in great splendour, surrounded by wealth, learning and luxury, as immortalised in *The Arabian Nights*.

Harp Musical instrument common to all races and periods, and originating in the twang of a taut bowstring. The earliest harps were bow-shaped and two-sided. Later came three-sided harps, and to-day the harp is the only instrument with mechanical fixed tones and separate strings for sharps, flats and naturals. The sound board next to the player gives resonance, the hollow pillars contain rods to work the mechanism, the comb contains the transposing mechanism and on the pedestal are the pedals. The strings are of coloured catgut, except the lowest, which are of wire. The compass of the harp is 6½ octaves.

The harp is one of the oldest of musical instruments and from earliest times kings and leaders have had their harpers. They were

known in Egypt, and there are many references to them in Greek literature.

Harpden Urban district of Hertfordshire. It is 25 m. from London, on both the L.M.S. and L.N.E. Rlys. Here is St. George's co-educational school, and near by is Rothamsted. Pop. (1931) 8349.

Harper's Ferry Town of West Virginia, U.S.A. It is 55 m. from Washington, where the Rivers Potomac and Shenandoah meet. Here the United States had an arsenal, which, on Oct. 16, 1859, was captured by John Brown and a few followers, but regained by the authorities the following day. John Brown (q.v.) was hanged.

Harpoon Dart-like barbed weapon used for killing whales. It was originally thrown by hand from an open boat. The older form is superseded now by the shot-harpoon invented in 1870 by a Norwegian, Sven Foyn. This is fired from a gun, and in the modern type carries an explosive charge which bursts in the whale's body.

Harpisichord Musical instrument. It is a descendant of the psaltery and the most important of keyboard instruments preceding the piano. In it the depression of the keys raised wooden "jacks" in which were mounted quills, or leather plectra. These twitched, or plucked, the metal strings, giving a pleasing but unvarying unsustained tone. In the 17th and 18th centuries the harpsichord accompanied recitatives as an orchestral instrument, but was most effective when used as a solo instrument.

Harpy Mythical monster with the face of a woman and the body of a vulture. They defiled whatever they touched. Juno sent them to deprive the blind Phineus of food, but later the sons of Boreas rescued him. Aeneas met them on his voyage to Italy.

The harpy eagle is a large species of eagle found in South America.

Harrier Breed of dog maintained for hunting hares by scent. The dogs, smaller than fox-hounds, may be 20 in. high and have large pointed ears. They are maintained in packs, of which there are about 50 in England, and a number in Ireland.

The name harrier is also used for men who run in cross-country races. These form teams and matches are held, the competitors being six or some other number on each side.

Harringay District of London. It lies about 4 m. to the north of the city, in the borough of Hornsey, and is reached by the L.N.E. and K.M.S. Rlys. There is a track for greyhound racing and speedway racing here.

Harrington Urban district of Cumberland. It stands on the coast, 5 m. from Whitehaven, and the chief industry is coal mining. Pop. (1931) 4125.

Harrington Earl of. English title borne since 1742 by the family of Stanhope. William Stanhope, a leading politician in the time of George II., was the first earl. A son of John Stanhope of Elvaston, Derbyshire, he served as a soldier and a diplomat, chiefly in Spain, and in 1730 was made a baron. From 1730 to 1746 he was a Secretary of State, and from 1747 to 1751 Lord Lieutenant of Ireland. In 1742 he was made an earl, and died, Dec. 8, 1756.

William, the 2nd earl, and Charles, the 3rd earl, were both soldiers of note. Charles, the 4th

earl, was the eccentric being who married the actress, Mary Foote, and Leicester, the 5th earl, was a noted sportsman, being perhaps the most prominent master of the foxhounds in his day. He died in 1917. The earl's seat is Elvaston Castle, near Derby, and his eldest son is called Viscount Petersham.

Harris Southern part of the Island of Lewis. Off the west coast of Scotland, it is about 20 m. long and forms part of the County of Inverness. The soil is very poor, fit for little more than the grazing of sheep. Fishing is an industry and the district gives its name to the tweed which is woven here. Tarbert on the coast is the chief town. Leverburgh is a fishing port made by Lord Leverhulme, who bought much of the land. Scarasta is a small watering place.

The Sound of Harris, dividing Harris from North Uist is about 7 m. wide and 10 m. long. It is the only channel for large vessels in the Outer Hebrides.

Harris Baron. English title. George Harris, born at Brasted, Kent, March 18, 1746, was the son of a clergyman and became a soldier. After service in America he went to India, where he made his reputation by his successes against Tippoo Sahib. He led the force that stormed Seringapatam and was instrumental in the acquisition of Mysore by Great Britain. In 1815 he was made Baron Harris. He died, May, 1829.

In 1872 the title came to George Robert Canning Harris, as 4th baron. Born Feb. 3, 1851, he went to Eton and Oxford, where he was famous as a cricketer. From 1875 to 1899 he was captain of Kent, and in 1930, when 80 years old, he played in a match at Eton. He had played also for England against Australia. He was Under Secretary for India and then for War, 1885-89, and from 1890-93 was Governor of Bombay. He is also known for his connection with the mining industry of South Africa. He died, March 24, 1932.

Harris Sir Augustus Henry Glossop. English actor manager. Born in Paris in 1852, he became an actor and appeared in Manchester in 1873. He is chiefly known as the manager of Drury Lane Theatre, London, which he took in 1879. There he produced melodramas and a popular series of Christmas pantomimes. He died June 22, 1896, having been a knight since 1891.

Harrismith Town of the Orange Free State. It stands on the River Wilge, 261 m. from Durban and 60 from Ladysmith, being connected with both by railway. It is the trading centre for a large district and, standing some 5000 ft. high, is a health resort. Pop. 6000.

Harrison Frederic. English scholar. Born in London, Oct. 18, 1831, he was educated at King's College, London and Wadham College, Oxford. For a time he was at Wadham as a tutor and fellow, and was one of the group who, taking up the teaching of Comte, founded the positivist movement in England. Having become a barrister he settled in London and from 1877-89 was Professor of Jurisprudence at the Inns of Court. He is chiefly known, however, as a graceful and forceful writer on a great variety of subjects. He was also what would now be called an uncompromising Victorian, as well as a stout individualist. He wrote lives of Cromwell, William the Silent and Ruskin. *The Meaning of History, The Choice of Books, The Creed of a Layman and The German Peril* are

others of his books. In 1908, always a great climber, he wrote *My Alpine Jubilee*, in 1911, *Autobiographic Memoirs*, and in 1920 *Novissima Verba*. He died at Bath, Jan. 14, 1923.

Harrogate Borough and inland watering place of Yorkshire. It is 203 m. from London and 18 from Leeds and is reached by both the L.M.S. and L.N.E. Rlys. It is chiefly known for its mineral springs, the waters of which are efficacious for various complaints. They belong to the corporation. Visitors are also attracted by the beautiful surroundings: in the vicinity is some of the finest Yorkshire scenery with Fountains Abbey, Bolton and other beauty spots. The chief buildings are the Royal Hall, the opera house, and the winter gardens, as well as the various pump rooms, baths and hotels. Harlow Moor and The Stray are open spaces. Pop. (1931) 39,785.

Harrow Agricultural implement for turning over the surface soil. It consists of a square or rhomb shaped frame bearing a number of fixed steel teeth, or "tines" projecting downwards. In the drag harrow the teeth are curved, but in the disc harrow they are replaced by saucer-shaped cutting discs. In the spring-tined harrow the teeth are curved and non-rigid.

Harrow Urban district of Middlesex. It is 12 m. from London and is served by the L.M.S., L.N.E., district and tube railways. Its full name is Harrow-on-the-Hill, and it has grown enormously in the 20th century. Here is Harrow School (*q.v.*). A new hospital was opened here in 1931. Pop. (1931) 16,378.

Harrowby Earl of. English title borne by the family of Ryder.

Sir Dudley Ryder, who was Lord Chief Justice, 1754-56, had a son, Nathaniel, who, in 1776, was made a baron. His son, Dudley, entered the House of Commons and took office under Pitt in 1789. In 1804-05 he was Secretary of State for Foreign Affairs, and from 1812-27 he was Lord President of the Council. In 1827, when he was made an earl, he refused the office of Prime Minister. In 1831-32 he had a good deal to do with the negotiations that led to the passing of the Reform Bill. Although a Tory, he was in favour of religious liberty and other reforms. He died Dec. 26, 1847, the last survivor of Pitt's colleagues.

His son, Dudley, the 2nd earl (1798-1882), and his grandson, Dudley, the 3rd earl (1831-1900), were both active politicians, the latter being Vice-President of the Council, 1874-78, and President of the Board of Trade, 1878-80. The present earl is descended from his brother who became the 4th earl. The earl's seat is Sandon Hall, Staffordshire, and his eldest son is called Viscount Sandon.

Harrowby is a village of Lincolnshire, just outside Grantham.

Harrow School English public school. Founded by John Lyon in 1571, it was for long a village school. Towards the end of the 18th century it became one of the chief schools in the land, rivalling Eton and Winchester. It accommodates about 700 boys and has a fine range of buildings and extensive playing fields. The buildings include the speech room, library and chapel, all modern. The old school, dating from 1611, with the fourth form room, still remains. A memorial hall was erected in honour of 619 Harrovians who fell in the Great War. The headmasters of Harrow have included

Christopher Wordsworth, C. J. Vaughan and H. M. Butler. Among its pupils were Byron, Peel, Palmerston and, more recently, Baldwin, Churchill and Galsworthy. For many years the school has been famous for its music.

Hartal Hindu word for a day of lamentation. In 1930 and at other times a hartal, or day of the kind, was proclaimed as part of the campaign against British rule.

Harte Francis Bret. American writer. Born Aug. 25, 1839, in Albany, he went to California about 1854, where he gained experience, but little else, as a miner and a schoolmaster. He then settled in San Francisco, where he worked as a compositor and then as a journalist on *The Golden Era*. From 1864-70 he was secretary to the California mint, and from 1868-70 he edited *The Overland Monthly*. He then lived in New York writing and lecturing until 1878 when he was appointed commercial agent at Crefeld, in Germany. From 1880-85 he was American consul at Glasgow, and the rest of his days were passed in England. He died at Camberley, May 5, 1902.

Bret Harte won great fame by his humorous poems and prose, much of which appeared first in periodicals. Mention may be made of his *Condensed Novels*, *The Luck of Roaring Camp*, *The Outcasts of Poker Flat* and *Plain Language from Truthful James*, but there are many others. His verses are inimitable.

Hartebeest Genus of antelopes native to Africa. One of the swiftest of the antelopes, it is about 4 ft. high and reddish brown in colour. It is disappearing rapidly from South Africa. Of several species, the handsomest is Hunter's, found in Somaliland.

Hartford City and port of the United States. It is in Connecticut, being the capital of that state, and is 125 m. from Boston. It stands on the Connecticut River and is served by several railway lines. There is a harbour and a good deal of shipping; other industries are the making of motor cars, typewriters and other kinds of machinery. It is also an insurance centre. Pop. (1931) 164,072.

Hartington Marquess of. Title borne by the eldest son of the Duke of Devonshire. Its most famous bearer was the statesman who became the 8th duke. Hartington is a village in Dovedale.

Hartland Village of Devonshire. In the north of the county, it is 4 m. from Clovelly. Four miles farther is Hartland Point, a cape on which a lighthouse stands.

Hartlebury Village of Worcestershire. It is 6 m. from Bewdley, on the G.W. Rly. It is chiefly famous for its castle, the residence of the Bishops of Worcester since the 13th century. The present building dates from the 18th century.

Hartlepool Borough and seaport of Durham. It stands on the coast, 18 m. from Durham and 247 from London, on the L.N.E. Rly.. The principal industries are shipping, shipbuilding and fishing. There is a good harbour. The Sandwell Gate is a relic of the city's past. With West Hartlepool it was bombarded by the Germans, Dec. 16, 1914. A good deal of damage was done to property and 113 persons were killed, a further 300 being wounded. Pop. (1931) 20,545.

Hartlepool West. County borough and market town of Durham. It is 245 m. from London and 2 m. to the south of Hartlepool, being served by the

L.N.E. Rly. The industries are shipping and shipbuilding, much coal being exported from here and timber imported. There are also engineering works and flour mills. The extensive docks cover some 400 acres. The town which is quite modern includes the watering place of Seaton Carew, to the south, and Stranton with an old church. Pop. 68,134.

Hartshorn Old name for liquid ammonia and carbonate of ammonia. These were prepared originally by the destructive distillation of the horns and hoofs of deer and other animals, the impure ammonia solution being known as spirit of hartshorn and the carbonate as salt of hartshorn. See AMMONIA.

Harty Sir Herbert Hamilton. British conductor and composer. Born at Hillsborough, Co. Down, Dec. 4, 1879, he studied music in London and elsewhere. He made a reputation with his piece, *An Irish Symphony*, which was followed by others. In 1920 he was appointed conductor of the Hallé Orchestra in Manchester, and in 1925 he was knighted. In 1931 he was prominent as a critic of the H.B.C. programmes.

Harvard John. Founder of Harvard University. The son of a butcher, he was born in Southwark in 1607. He went from school at Southwark to Emmanuel College, Cambridge. In 1637 he went to America and was chosen minister of a church at Charlestown, now part of Boston, but in the next year, Sept. 14, 1638, he died. He left some property to a college which was named after him and developed into Harvard University. Memorials to Harvard in England are a chapel in the cathedral at Southwark and Harvard House at Stratford-on-Avon, which was built by his maternal grandfather.

Harvard University One of the chief universities of the United States. It is at Cambridge, now part of Boston. Some Cambridge graduates founded a college there, and in 1637 the first building was opened. Its first president was Nathaniel Eaton, and it was strongly sectarian, but all religious tests have now been abolished. It is governed by a board of overseers and a corporation, its head being the president.

To-day the university has a fine range of buildings in and near Boston, and its activities cover every branch of learning. To the original Harvard College, a medical school and a law school were added in 1782 and 1817 respectively. Schools of engineering and other branches of applied science were established later. In 1909 a school of business administration was opened. The university has an observatory in the Andes, a school of forestry and a school of agriculture. It has libraries and museums, halls of residence and many other buildings. In 1930 a sum of £600,000 was given to the university to build a college on the lines of those at Oxford and Cambridge. It is famous for its sporting activities. Its students which include women, number over 8000.

Harvest Mite Familiar name for six-legged larval forms of a family of velvety ticks, not insects; also called the harvest bug. In Britain the common crimson-haired *microtrombidium autumnale*, infests grass and herbage, and burrows into the skin of man and other animals. It may be destroyed by ammonia. The adults feed on insects.

Harvey Sir George. Scottish painter. Born at St. Ninians in 1806, he

studied painting in Edinburgh and soon made a reputation. He was one of the original associates of the Royal Scottish Academy and in 1864 was made its president. His chief pictures deal with historical incidents such as "Covenanters Preaching" and "Bunyan in Bedford Gable." He was knighted in 1867, and died, Jan. 22, 1876.

Harvey William. English physician. He was born at Folkestone, April 1, 1578, and was educated at King's School, Canterbury. He studied medicine at Cambridge and Padua, and settled down in London about 1603. He became physician to St. Bartholomew's Hospital, lecturer at the College of Physicians, and medical attendant to James I. and then to Charles I. He was in attendance on Charles at Oxford during the Civil War and was made warden of Merton College. He died in London, June 3, 1657.

Harvey is famous for discovering the circulation of the blood, which he explained in his lectures at the College of Physicians and afterwards in a book, published in 1628.

To commemorate Harvey's work the **Harveian Society** was founded in 1831. In 1931 the centenary of its existence was celebrated.

Harwich Seaport and borough of Essex. It stands on the estuary formed by the Orwell and the Stour, 70 m. from London. There is a large harbour and from Parkstone Quay the L.N.E. Rly. runs a regular service of boats to Amsterdam, the Hook of Holland, Hamburg and elsewhere. It is also the terminus of the ferry service to Zeebrugge. Fishing is an industry and there are one or two manufactures. The borough includes Dovercourt and is a famous yachting centre. During the Great War Harwich was an important station for the navy. An old seaport, the town sent members to Parliament from 1604 to 1867. Pop. (1931) 12,700.

Harwood Great. Urban district and market town of Lancashire. It is 5 m. from Blackburn, on the L.M.S. Rly. The principal industries are cotton manufacturing and coal mining. It is called Great Harwood to distinguish it from Little Harwood, a village 2 m. from Blackburn. Pop. (1931) 12,787.

Harz Mountains Range of mountains in Germany. In the north-west of the country, they are chiefly in Brunswick, between the rivers Saale and Leine. They extend for about 60 m. from east to west and are about 20 m. broad. The average height of the range is about 2000 ft. and the highest, the Brocken, is 3750 ft.

The Harz are famed as a pleasure resort and for their mineral wealth. Therein are Harzburg and other centres for tourists and pleasure-seekers. The scenery is very fine, and legends gather round almost every hill and valley. The minerals found include silver, lead and copper; the mining centres are Clausthal and Mansfeld.

Hasdrubal Carthaginian soldier. A son of Hamilcar Barca and a brother of Hannibal he lived in the 3rd century B.C. He went to Spain with Hannibal and in 218 was left in command there whilst his brother marched into Italy. For ten years he fought the Romans, and in 207 led his army into Italy. He was met and defeated by the Romans at the Battle of the Metaurus, where he was killed.

Another, Hasdrubal, became, in 228 B.C., commander of the Carthaginian Army in

Spain. There he made a treaty with the Romans, dividing the country between them. In 221 he was murdered.

Hashish Preparation of the hemp plant, especially the Indian variety, *cannabis indica*. It possesses narcotic and intoxicating principles. The dried leaves and small stalks are smoked, made into a confection, or infused for drinking. The most favoured forms come from the flowering and fruiting heads. The word assassin means really "hashish eaters."

Haslar District of Gosport. Here is a naval hospital, the largest in the country. Opened in 1753 it has since been enlarged. It accommodates over 2000 patients and the grounds cover 60 acres. On Haslar Point, at the entrance to Portsmouth Harbour, the Navy has a submarine depot.

Haslemere Borough and market town of Surrey. It is 43 m. from London, on the S. Rly. Near by are Hindhead and other beauty spots; also Aldworth, once the residence of Lord Tennyson. Pop. (1931) 4340.

Haslingden Borough and market town of Lancashire. It is 205 m. from London, by the L.M.S. Rly., and 19 m. from Manchester. There are collieries and quarries, and also textile manufactures. Pop. (1931) 16,637.

Hastings County borough and watering place of Sussex. It is 62 m. from London, on the S. Rly. A fine promenade runs for 3 m. along the sea front to S. Leonards, which is within the borough. Apart from catering for visitors, fishing is the chief industry, there being a distinct fishing quarter and a fish market. An old town, Hastings is one of the Cinque Ports and was long a flourishing seaport. Pop. (1931) 65,199.

Hastings Town of N. Island, New Zealand. It is 12 m. from Napier. The town, the business centre of a district where sheep are reared, has a refrigerating works and other industries. It was seriously damaged by the great earthquake of 1931. Pop. 15,300.

Hastings Battle of. Battle fought between the Norman invaders of England and the Anglo-Saxons, on Oct. 14, 1066, and regarded as one of the decisive battles of the world. William, Duke of Normandy, who claimed the English crown on the death of Edward the Confessor, landed at Pevensey and marched inland. Having just defeated the Norwegians at Stamford Bridge, Harold hurried south to meet him, collecting reinforcements on the way. He took up a position on a hill, about 6 m. from Hastings, and there the Normans found him. The battle was stubbornly contested, but after a time William tried a ruse. Some of his men pretended to fly. Many of the Saxons followed, thus breaking their ranks, but the *huscarles* stood firm around their king. Shooting in the air, the Norman archers killed a number of them, including Harold and his two brothers. The Saxon Army was destroyed, and William was free to march to London. This battle, which is sometimes called Senlac, is depicted on the Bayeux Tapestry.

Hastings Marquess of. English title, now extinct. It was given in 1817 to Francis Rawdon-Hastings, Earl of Moira, a soldier. He married the Countess of Loudoun, and their son and grandsons inherited both titles. When Henry, the 4th

marquess, notorious as a spendthrift and a sportsman, died without sons (Nov., 1868), the title of Marquess of Hastings became extinct. The earldom of Loudoun, however, passed to his sister, who also inherited the estates. The seat of the Marquess was Donington Hall, near Derby.

The English Barony of Hastings is held by the family of Astley. It dates from 1295, but was in abeyance from 1391 to 1841. In that year it was given to Sir Jack Astley, a descendant of John Hastings, the 1st baron, who was a claimant to the Scottish throne.

Hastings Sir Patrick. English lawyer. Born in 1880, he was educated at Charterhouse School and became a mining engineer. Soon he turned to the law, became a barrister and in a few years had a large practice. In 1919 he was made a K.C., and in 1922 he entered the House of Commons as Labour M.P. for the Wallsend division. In the Labour Ministry of 1923 he was Attorney-General, but in 1926 he resigned and left political life. Sir Patrick has written two plays.

Hastings Warren. English administrator. Born at Churchill, Oxfordshire, Dec. 6, 1732, he was a son of Rev. P. Hastings and was educated in London, finishing at Westminster School. In 1750 he went to India as a writer under the East India Co., and he was one of the little army that marched to Calcutta with Clive. He was made President at Murshidabad in 1758 and from 1761-64 was a member of the Council of Bengal. His imperious nature made him difficult to work with, and in 1764 he returned to England. In 1768 he was again in India as a member of the Council of Madras.

In 1772 Hastings was made President of the Council for Bengal, and in 1773 the first Governor-General of India, a post which he held for 12 years. In spite of the opposition of Sir Philip Francis and other members of the Council, Hastings did a great work, and the British authority in India is due in no small measure to his pioneer efforts. He was, however, unscrupulous in his methods of raising money, and in other ways acted in an arbitrary and perhaps unjust manner. The result was that, when in 1784 he resigned and returned to England, there was a loud and insistent demand for his impeachment.

The trial of Hastings before the House of Lords, in Westminster Hall, aroused great interest at the time, and has not ceased to be a subject of controversy. It began in Feb., 1788. Arrayed against him was the united eloquence of Burke, Fox and Sheridan, and for seven years the proceedings continued. The chief charges were his share in the murder of Nuncomar, the robbery of the begums of Oudh and the hiring out of British troops to make war on the Mahrattas. The House of Lords acquitted him in April, 1795. The trial cost Hastings his fortune, but the East India Co. came to his rescue and he was able to buy Daylesford in Worcestershire, the old seat of the family. There he lived quietly until his death on Aug. 22, 1818.

Haswell Market town of Durham. It is 252 m. from London, on the L.N.E. Rly. The chief industry is coal mining. Pop. 5860.

Hatcham District of London. About 4 m. to the S.E. of the city, on the S. Rly., it is in the boroughs of Deptford, Lewisham and Camberwell.

Hatchment Panel displaying over his dwelling place a deceased person's armorial bearings. For unmarried or widowed persons the panels are painted black; should a husband or wife survive, the survivor's half of the achievement is painted white. The hatchment is shaped like a lozenge. The custom was for the hatchment, after the funeral, to be placed in the church, and there are still many of them in country churches.

Hatfield Town of Hertfordshire, in full Bishop's Hatfield. It is on the Lea, 17½ m. from London on the L.N.E. Rly. Apart from Hatfield House (q.v.) there are the ruins of a palace, once the residence of the bishops of Ely. Before coming to the throne, Queen Elizabeth lived here. Pop. 5700.

Hatfield Village of Yorkshire (W.R.). It stands on the Don, 7 m. from Doncaster. The opening of coal mines has altered the nature of the village, which is now a populous colliery centre. The district round Hatfield, called Hatfield Chase, was once a forest, used by the kings for hunting. It lay between the rivers Don, Idle and Thorne. Much of it was a swamp and in 1626 it was drained by Dutch engineers.

Hatfield House Residence of the Marquess of Salisbury. It was built early in the 17th century by Robert Cecil, who had just acquired the estate, and is one of the finest Jacobean houses in England. The hall, the long gallery, the library and the chapel are fine apartments. The house has a valuable collection of portraits and other works of art, as well as of state papers. The park in which it stands is 10 m. in circumference.

Hatfield Peverel Town of Essex. It is 6 m. from Chelmsford on the L.N.E. Rly. Pop. 1300.

Hathaway Anne. Wife of William Shakspeare. The daughter of Richard Hathaway, a farmer at Shottery, Warwickshire, she was born in 1556. On Nov. 28, 1582, she married the poet whom she survived, dying in 1623. She had four children, but only two, both daughters, attained maturity. Ann Hathaway's cottage at Shottery is public property, and the adjacent farm has been purchased and renamed Hathaway Farm.

Hathersage Village of Derbyshire. It is 34 m. from Manchester and 161 m. from London, on the L.M.S. Rly. Around the village is some of the finest of the Derbyshire scenery. Little John is said to have been buried in the churchyard. Pins and needles are made here. Pop. 1600.

Hathor Egyptian goddess. Originally a sky deity, she was often depicted as a cow, or with a cow-eared human face. A life-size statue of a cow in sandstone, worshipped at Hathor in the 15th century B.C., was unearthed at Thebes in 1906. The Hathor Temple at Dendera still stands. The seven Hathors were kindly fates.

Hatry Clarence Charles. English financier. Born in 1890, he went into business in London, and became a successful company promoter. He founded the Commercial Bank of London, and, until this failed in 1920, controlled a number of associated undertakings. In 1929, with his associates he raised money by pledging securities with

the banks. It was soon discovered that some of the stock was forged, and the shares of his companies fell heavily. On Sept. 19 he made a full confession and steps were taken to deal with the situation. In Jan., 1930, he and his associates were tried and found guilty. All were sentenced to penal servitude, his sentence being for 14 years. The amount of money involved in this failure was over \$13,000,000, but the net loss was a much smaller sum.

Hatteras Island and cape of the United States. It is in N. Carolina. Heavy seas render the cape dangerous to navigation.

Hatton Sir Christopher. English courtier. Born at Holdenby, Northamptonshire, in 1540, he became a lawyer. He is chiefly known as one of Elizabeth's favourites, her admiration being due, presumably, to his fine figure and gallant bearing. She employed him on public business, secured for him a seat in Parliament, and in 1587 made him Lord Chancellor. He died Nov. 20, 1591.

Hatton Garden, a London thoroughfare between Holborn Circus and Clerkenwell Road, perpetuates his name, as his residence was therein.

Hauberk Piece of armour. The word was applied originally to chain mail protecting the neck. From about the 12th century onwards it was used for a tunic or coat of chain mail. A garment worn as penance in the time of Chaucer was also known as a hauberk.

Hauptmann Gerhart. German author. He was born in Silesia, Nov. 15, 1862, his father being the keeper of the village inn. He was educated at Breslau, studied art in Italy and travelled. In 1889 he published his first notable work, a play, *For Sonnenaufgang* (Before Sunset), a realistic piece which had great influence in Germany and made him known abroad. A number of other dramas, comedies and tragedies, the latter including *The Wessers*, followed. He also wrote novels, including *The Island of the Great Mother*, 1924, which, like others of his works has been translated into English, and a poem *Imma*. In 1912 he received a Nobel prize for literature.

Hausa Negroid people mostly living in the Sudan and Nigeria, where they form a number of native states. Their language, spoken by about 15,000,000 people, is Hamitic and is the lingua franca of the Sudan. The Hausa, who are mainly Mohammedans, are physically a fine race.

Hautboy English way of spelling *hautbois*, a wooden high-toned musical instrument. In Handel's time it was written *hoboy* and is now oboe.

Havana City and capital of Cuba. It stands on the N. coast on a bay which forms a fine natural harbour. There is an old town with narrow streets and a new town with fine thoroughfares and squares. It has a broadcasting station (49.5 M.).

Havana is famous for its manufacture of tobacco and cigars, whilst sugar is another staple industry. There is much shipping, for which there are modern docks. Railways connect the city with the other towns of the island. Havana was founded in 1514 and still bears traces of its Spanish origin. Pop. (1930) 589,979.

Havant Urban district and market town of Hampshire. It is 7 m. from

Portsmouth and 67 from London on the S. Rly. It stands on Langstone Harbour and was at one time a prosperous port. The industries are tanning, brewing and malting. Pop. (1931) 4264.

Havel River of Germany. It rises in the state of Mecklenburg-Strelitz and flows chiefly S. to Spandau where the Spree falls into it. Having passed Potsdam it flows mainly W. until it falls into the Elbe near Wittenberg. Its length is 220 m., and most of it is navigable, whilst canals connect it with other German rivers.

Havelock Sir Henry. English soldier. He was born in Sunderland, April 5, 1795, and was educated at Charterhouse. In 1823 he went to India, and saw a good deal of active service against the Afghans and the Sikhs, rising to command a division in the Persian War of 1856 and to be Adjutant-General. When the Indian Mutiny began he led a force from Allahabad to Cawnpore, which he entered. He then advanced towards Lucknow, but after fighting eight battles was forced to fall back until reinforcements arrived. With these he made his way into Lucknow, but was besieged in the residency until relieved by Sir Colin Campbell. A week later, Nov. 24, 1857, he died of dysentery. Havelock was made a knight and a baronetcy was conferred on his son, Sir Henry Havelock-Allan, who won the V.C., and was for a time an M.P. He was killed by the Afghans in 1847.

Haverfordwest Borough, market town and river port of Pembrokeshire; also the county town. It stands on the West Cleddau River, 8 m. from Milford Haven on the G.W. Rly. The old town is on one side of the river and the suburbs of Prendergast and Cartlet on the other, two bridges connecting them. A trade in agricultural produce is carried on. In the days when ships were small it was a prosperous port. Pop. (1931) 6113.

Havergal Frances Ridley. English hymn writer. Born at Astley, Worcestershire, Dec. 14, 1836, the daughter of a clergyman, she wrote an enormous quantity of verse of a religious character, including many hymns. She died June 3, 1879.

Haverhill Urban district and market town of Suffolk. It is 18 m. from Cambridge and 55 from London, being served by the L.N.E. Rly. The chief industries are the making of clothing and boots. There is an agricultural trade. Pop. (1931) 3827.

Another Haverhill is a city of Massachusetts. It is on the Merrimack River, 32 m. from Boston, and is a manufacturing centre. Pop. 49,200.

Havre Seaport and important railway terminus of France, also called Le Havre. It is on the estuary of the Seine, 55 m. from Rouen and 143 from Paris.

There is a regular steamer service with Southampton, and from here there is a large export trade to America and Britain. During the Great War it was a base for the British forces, and immense numbers of men and quantities of stores passed through it. Other industries are shipbuilding, the manufacture of machinery, oil refineries and engineering works. Havre was made a seaport in the 16th century. From 1914-18, it was the seat of the Belgium Government. Pop. (1930) 168,076.

Hawaii Island of the Pacific Ocean, also called Owyhee. It belongs to the United States and lies 2000 m. to the S.W. of San Francisco. Its area is 4000 sq. m.

Hilo is the capital. Sugar, coffee and other tropical products are grown and exported. On the island are Mauna Loa and Mauna Kea, two of the greatest volcanoes in the world, which form part of its greatest mass of volcanic material. They are nearly 14,000 ft. high.

The group of islands of which Hawaii is the largest, are known as the Hawaiian or Sandwich Islands. The others are Maui, Oahu, Molokai, Kauai, Lanai, Niihau and Kahoolawe. There are many smaller ones, all uninhabited. Honolulu on Oahu is the capital of the group. Apart from Hawaii itself, they cover 2450 sq. m. There is a naval station at Pearl Harbour and there are railways on the larger islands. Pop. 192,000.

The islands were discovered by Captain Cook in 1778, and were for many years independent. In 1893 the queen died and a republic came into being, but this only lasted until 1898, as in that year the United States annexed the islands. The English called them the Sandwich Islands, and by this name they were long known.

Hawarden Village of Flintshire. It is 6 m. from Chester on the L.N.E. Rly. It has become a coal mining centre, but its chief interest is the castle, long the residence of W. E. Gladstone. This was built in the 18th century upon the site of an older building, of which the ruins remain in the park. It was the seat of the Stanleys and then of the Glynnnes, from whom it passed to the Gladstones. It still remains in the family. In Broadlands House is the Gladstone Museum. Pop. 6500.

Hawes Market town of Yorkshire (N.R.). It is 16 m. from Leyburn, on the L.N.E. Rly. It is chiefly a market for agricultural produce and is also a good centre for tourists. Pop. 1500.

Hawes Junction, an important junction on the L.M.S. system, is 6 m. from the town. A terrible accident took place here on Christmas Eve, 1910.

Haweswater Lake of Westmorland. It is 14 m. from Penrith and 9 from Shap, in the E. of the Lake District. It is 2½ m. long and is surrounded by somewhat desolate scenery.

Like Thirlmere the lake is used to supply Manchester with water, and in 1930 it was decided to enlarge it for this purpose. The scheme includes raising the level of the lake by 90 ft., and the destruction of a church, a vicarage, an inn and three farm houses at Mardale.

Hawfinch Stout-billed bird of the finch family (*Coccothraustes vulgaris*). It is distributed over Europe, Asia and N. Africa, and is common in England. It is 7 in. long. The plumage of the male is deep brown on the back with blue-black wings and a white-tipped tail. The females lay four, five or six black spotted eggs, olive-green in colour.

Hawick Burgh and market town of Roxburghshire. It stands on the Teviot, 53 m. from Edinburgh, on the L.N.E. Rly. The town is a centre of the wool industry and has a large cattle market. The common riding is a festival held here every year. In the neighbourhood are places of great historic interest. Pop. (1931) 17,059.

Hawk Name denoting indefinitely all diurnal birds of prey not being vultures or eagles. Thus limited, it comprises a sub-family, including the harriers, represented in Britain by the goshawk and the

sparrow hawk, besides the S. American caracara sub-family.

Hawkbit Genus of biennial or perennial herbs of the composite order (*Compositae*). The yellow flower-heads, all their florets being strap-shaped, appear on numerous simple or branched milk-juiced stalks springing from the root stock. Unlike dandelions, the pappus hairs are feathery. Two British species have leaves bearing forked hairs; one is smooth-leaved. The herb is found in Europe and parts of Asia.

Hawke Baron. English title held by the family of Hawke. Edward Hawke, a Londoner, was born in 1705 and entered the navy. In 1747 he commanded the fleet which defeated the French off Cape Finisterre. He was then knighted and elected M.P. for Bristol, but remained on active service. In 1756, when the Seven Years' War began, Hawke went to the Mediterranean, and in 1759 he won his greatest victory by crushing the French Fleet in Quiberon Bay. From 1766-71 he was First Lord of the Admiralty, and in 1776 was made a baron. He died Oct. 17, 1781.

Hawke's descendant, Martin Bladen Hawke, the 7th baron, was born Aug. 16, 1860, and won fame as a cricketer. He played for Eton and Cambridge, and captained teams in Australia, 1891-92 and 1894-95, and in S. Africa, 1895-96; but he is best remembered as the captain of the Yorkshire team during its greatest days, 1883 to 1910.

The British cruiser Hawke was sunk by a German submarine, Oct. 15, 1914, off the E. coast of Scotland, over 500 officers and men being lost.

Hawkes Bay District of New Zealand. It covers some 4000 sq. m. in North Island, and is a region in which timber felling and sheep rearing are the chief industries. The chief ports are Napier, Gisborne and Hastings, all of which were severely damaged by an earthquake in 1931.

Hawkesbury River of New South Wales. It is 330 m. long and falls into Broken Bay about 25 m. from Sydney. It is formed by the Nepean and Grose rivers.

The English title of Baron Hawkesbury is borne by the Earl of Liverpool. In 1786 it was given to Charles Jenkinson, who was made earl in 1796. His son, Robert Banks Jenkinson, the 2nd earl, was known as Lord Hawkesbury until he succeeded to the earldom in 1808. He was Foreign Secretary in 1801-02.

Hawkhurst Town of Kent. It is 47 m. from London on the S. Rly. At one time Hawkhurst was a market town and a centre of the cloth manufacture. Pop. 3340.

Hawking Sport of hunting game with hawks or falcons, also called falconry. It is a very old pastime, having been known in China and Greece before the Christian era. It is, or has been, practised in many of the countries of the world, Asiatic as well as European. In England falconry was practised by the Anglo-Saxons and for some seven centuries it was perhaps the chief sport of the richer classes.

Great care was taken in choosing and training the hawks, and kings and nobles had for this purpose staffs of falconers. The birds used in hawking were the peregrine falcon, gerfalcon, merlin and others belonging to the long-winged class, and the sparrow hawk,

goshawk and others of the short-winged class. The female bird, being much the larger, was usually taken, although the male bird, called the tiercel, was sometimes used.

When fully trained and ready for the field, the hawk's eyes were covered with a hood, and was carried on the wrist of the falconer, being attached thereto with straps called jesses. She was also provided with bells so that, having been flown, her whereabouts could be located. The falconer also carried a lure and a cage, the former for the bird's food and the latter to carry her on. He wore a leather glove to protect the wrist. When the game was sighted the hawk was unhooded and loosed by the falconer, who was on horseback and who was often accompanied by dogs to retrieve the fallen bird or animal. In the 20th century there was a revival of the sport, and a British Falconers' Club was founded.

Hawkins Sir John. English seaman. Born at Plymouth in 1532, he was the son of a sailor and went to sea when a boy. In 1562 he obtained command of a ship, which was profitably engaged in carrying slaves from Africa to S. America. In 1567 he led a small fleet on the same errand, Drake being one of his officers. He got a great deal of plunder, but he lost this in a fight with the Spaniards and narrowly escaped with his life. He was later chosen M.P. for Plymouth in 1572, and served as comptroller of the navy whilst carrying on a shipbuilding business at Deptford. He fought his own ship the *Victory*, against the Spaniards in 1588, and was knighted. Then he took to the sea again, joining in plundering expeditions, and he was with Drake when he died off Porto Rico, Nov. 12, 1595.

Hawkins had an only son, Richard. He, too, was a sailor, making voyages under Drake and fighting a ship against the Armada. In 1594, when plundering Spanish possessions in S. America, he was beaten in a sea fight and taken prisoner. He was a captive until 1602, being knighted and elected M.P. soon after his release. He died April 17, 1622.

Hawkshead Village of Lancashire. It is situated in the Lake District, being about a mile from Bowness, and is chiefly interesting because Wordsworth was educated at the grammar school. This was closed in 1910.

Hawkstone Village of Shropshire. It is 4 m. from Wem and is famed for its hall, long the seat of the Hill family. It dates from the early 18th century and stands in a fine park. The hills near are called the Hawkstone Hills.

Hawkweed Large genus of milk-like perennials of the composite order (*hieracium*). They are native to N. temperate and Arctic regions. The yellow or orange flower heads, sometimes brown striped, with all the florets strap-shaped, are solitary or clustered, the pappus hairs are rough and brown. Among many British species is the mouse ear, *H. pilosella*.

Hawkwood Sir John. English soldier. Born about 1330, he became a soldier, and for his services at Crécy and Poitiers Edward III. made him a knight. Soon after 1360 he went to Italy, where he gathered together a body of mercenaries, called the White Company. Their services were hired out to rulers who wanted help, and at their head Hawkwood won renown as one of the most famous fighters of the day. He died in Florence in 1394.

Haworth Urban district of Yorkshire (W.R.). It is about 4 m. from Keighley on the L.M.S. Rly. The villa is chiefly famed for its association with the Brontës. Patrick Brontë was curate here, 1820-61, and here his daughters lived, wrote, and, save one, are buried. The parsonage is now a Brontë Museum. Pop. (1931), 5912.

Hawthorn Small tree found in Great Britain and other parts of the temperate regions. It bears white or red flowers which grow in large clusters and are very fragrant when they bloom in the spring. Hawthorn, also called the may and the whitethorn, bears berries called haws. It belongs to the natural order *rosaceae*.

Hawthornden Village of Midlothian. It is 8 m. from Edinburgh on the L.N.E. Rly. The glen through which the Esk flows is a noted beauty spot, and the place is also famous as the home of William Drummond, the poet.

HAWTHORNDEN PRIZE In Drummond's memory the Hawthornden Prize was founded by Miss Alice Warrender. This is a sum of £100 given each year to the author of an imaginative work. The author selected must be under 44 years of age. It has been won by Siegfried Sassoon with *Memoirs of a Fox Hunting Man*, and Lord David Cecil with *The Stricken Deer*.

Hawthorne Nathaniel. American. 1804, at Salem, Massachusetts, the son of a sailor, he went to Bowdoin College, Maine, but took up no regular profession. He wrote a good deal, but this was not very profitable, and in 1839 he was given a post in the custom house at Boston. In 1811 he left this to join the Brook Farm community, a Socialist experiment, but was forced to accept employment again, this time as a surveyor at Salem. He was there until 1850, and in 1852 he settled at Concord. From 1853-57 he was consul at Liverpool, after which he travelled in Europe before returning to Concord. He died at Plymouth, New Hampshire, May 18, 1864.

One of the greatest of American writers and certainly one of the most charming, Hawthorne writes delightfully of the New England he knew and of its Puritan people. His most notable book is *The Scarlet Letter*. Hardly less powerful in plot and attractive in style is *The House of the Seven Gables*. *Twice Told Tales* are short stories, as are the charming *Mosses from an Old Manse*. His other writings include *Fanshawe*, his first novel, some volumes of historical stories for children, *The Wonder Book*, *The Snow Image*, *The Blithedale Romance* and *Tanglewood Tales*. His descriptions of England are in *Our Old Home*. His son, Julius Hawthorne, wrote a number of novels.

Hawtrej Sir Charles Henry. English actor manager. Born Sept. 21, 1858, he was a son of Rev. John Hawtrej, a master at Eton and a grandson of Rev. Edward Craven Hawtrej, who was headmaster of that school, 1831-52. He went to Rugby and Oxford and became an actor, first appearing on the London stage in 1881. In 1883 he adopted a German play and calling it *The Private Secretary* produced it in London. A conspicuous success, it made Hawtrej's reputation, and for the next 30 years he was one of the most popular comedians on the stage, numerous successes standing to his credit. As a manager he controlled Her Majesty's

Theatre, and then *The Comedy*. He was knighted in 1922 and died July 30, 1923.

Haxey Village of Lincolnshire. It is in the Isle of Axholme, 7 m. from Gainsborough and has a station on the L.N.E. Rly. It is famed for the game called *Haxey Hood* that has been played there for over 600 years. It is a kind of football and in it hundreds of players take part. On the afternoon of Jan. 6 the game begins with a procession of players to the base of an old village cross. The lord of the hood wears a red coat and a hat wreathed with flowers and carries a wand made of 13 willows tied 13 times with willow bands. He has a retinue of 12 men, called boggans, and a fool dressed in motley, carrying a rod with bladder attached. The fool makes a speech standing upon the base of the cross, and invites everyone to take part in the ancient game. The lord then leads the way to a field on the top of the hill near where the game is played. It originated in a struggle for the possession of a hood lost by Lady Mowbray.

Hay Grass, clover and other herbage mown and dried for use as fodder. It is derived from rotation crops or permanent meadow and pasture. Sun-drying reduces the moisture from three-fourths in the green plants to one-fifth in the dry. Hay making, once done solely by manual labour, is now done by mowing machines, self-acting horse rakes and hay elevators. The British hay harvest for 1930 was 14,426,000 tons. A ton or load of hay comprises 36 trusses, each weighing 56 lb. for old, or 60 lb. for new hay.

Hay Town of Brecknockshire. It is on the Wye, 21 m. from Hereford on the G.W. Rly. It is a good centre for the Black Mountains. There are remains of a castle. Pop. 1600.

Hay Is the name of a town of New South Wales. In the Riverina district, it stands on the Murrumbidgee, 460 m. from Sydney. Pop. 2500.

A river of Canada is called the Hay. It rises on the borders of Alberta and British Columbia and flows for 350 m. to the Great Slave Lake.

Hay Ian. Pen name of the British novelist, Ian Hay Beith. Born April 17, 1876, he was educated at Fettes College and St. John's College, Cambridge. He became a schoolmaster, and was for a time at Fettes. In 1907 he published *Pip*, a novel. This was a success and others followed including *A Man's Man*, *A Safety Match* and *A Knight on Wheels*. In 1911 he joined the Argyll and Sutherland Highlanders, and wrote *The First Hundred Thousand*, one of the best books written on life in the training camps and at the front. It was followed by others. After the war Hay wrote other novels, but he made a greater success with his plays, especially *Tilly of Bloomsbury* and *The Sport of Kings*. With P. G. Wodehouse he wrote *Ra Ra Black Sheep* and *The Damsel in Distress*, and with Stephen King-Hall *The Midshipmaid*.

Hay John. American writer and politician. Born at Salem, Indiana, Oct. 8, 1838, he entered the office of Abraham Lincoln and became a lawyer. In 1861 he was made private secretary to Lincoln. After Lincoln's murder in 1865, he was in the diplomatic service until 1870. He was then occupied as a journalist and a civil servant. In 1897 he was sent to London as ambassador, but in 1898 he returned to Washington to become Secretary of State, and served under McKinley and Roosevelt until his death, July 1, 1905.

Hay was prominently associated with the

foreign policy of his country, his work including the treaty with Great Britain about the Panama Canal called the Hay-Pauncefote Treaty and the settlement of the boundary of Alaska. He wrote with J. G. Nicolai a long biography of Lincoln, and the popular and humorous *Pike County Ballads*.

Haydock Urban district of Lancashire. It is 22½ m. from London by the L.N.E. Rly., and about 14 m. from Liverpool. Here is Haydock Park race course. There are iron works and collieries. Pop. (1931) 10,352.

Haydn Franz Josef. Austrian composer. He was born at Rohrau, Lower Austria, March 31, 1732, and when a boy became a chorister in St. Stephen's Cathedral, Vienna. Expelled for a prank in 1748, he studied music and supported himself until Metastasio introduced him to wealthy patrons. As chapel master to the Esterhazy family he became famous between 1762 and 1790 as a composer of quartets, symphonies, etc. In 1791 and 1794 he visited England; in 1797 he composed *The Emperor's Hymn*, and in 1798 and 1801 *The Creation and The Seasons*. He died in Vienna, March 27, 1809. 104 symphonies and numberless other works testify to Haydn's genius.

Haydon Benjamin Robert. English painter. Born at Plymouth, Jan. 26, 1786, he was educated at Plympton and then studied art in London. His paintings soon gained recognition, and he still has a place as an historical painter. Among them are "Dentatus," "Christ's Entry into Jerusalem," "The Banishment of Aristides," "Wellington at Waterloo," "The Judgment of Solomon," "Napoleon at St. Helena" and "The Raising of Lazarus." Often in debt and other difficulties, he committed suicide, June 22, 1846.

Haydon's lectures on painting which were very popular, have been published. He also wrote an *Autobiography*. His *Correspondence* and *Table Talk* were also published.

Hayes Urban district of Middlesex. It is 13 m. from London, and the Grand Union Canal passes through it. Of late Hayes has become an industrial centre, and here are works for making printing machines, gramophones, etc. Pop. (1931) 23,646.

Hayes Village of Kent. It is 15 m. from London, on the S. Rly. Hayes Common is a fine open space covering over 200 acres. At Hayes Place the Earl of Chatham lived and died, and his son, William Pitt, was born. In 1930 the house was pulled down.

Hay Fever Complaint affecting the mucous membrane of the eyes, ears and throat. It takes the form of a violent cold and it may be associated with asthma. It is due to the irritation caused by inhaling the pollen or dust of plants and grasses in sensitive persons. Timothy grass being one of the worst, and attacks persons liable to it mainly during the hay-making season. They should, therefore, avoid fields of hay. Sneezing, headache and a general feeling of lassitude are symptoms of the complaint, which rarely attacks old people. To cure it an anti-toxin has been prepared.

Hayle Urban district and seaport of Cornwall. It is 7 m. from Penzance on the G.W. Rly. It has a harbour and fishing is the chief industry. Pop. (1931) 915.

Hayle is the name of a river 10 m. long that flows into St. Ives Bay.

Hayling Island of Hampshire. It is situated between the harbours of Langstone and Chichester and covers about 10 sq. m., being about 4 m. long. The island is a popular seaside resort, and on it are golf links. Havant is the nearest town.

Haymarket London thoroughfare. It extends from Piccadilly to Pall Mall, and is so-called because a hay market was held here until 1830. In it is the Haymarket Theatre, built in 1821 as a successor to one dating from 1720. Here was erected in 1705 the Queen's Opera House, which gave way to the King's Theatre, named Her Majesty's from 1837 to 1901, when it took its present name, His Majesty's.

Hayter Sir George. English artist. Born in London, Dec. 17, 1792, he studied at the R.A. schools there, and in Rome, later making a reputation by his portraits and miniatures. In 1841 he was appointed painter to Queen Victoria, and in 1842 was made a knight. He died Jan. 18, 1871.

Hayward Thomas. English cricketer. Born at Cambridge, March 29, 1871, he became a professional cricketer, and settling in London qualified to play for Surrey. In 1893 he appeared first in the team, and of it he remained a prominent member until the Great War. In 1906 he made 3518 runs in the season, and altogether he scored 101 centuries. In 1898 he made 315 in a single innings, his highest score. He represented England against Australia several times.

Hayward's Heath Urban district and market town of Sussex. It is 38 m. from London on the S. Ry. A large cattle market is held here. Pop. (1931) 5382.

Hazel Genus of shrubs or trees related to the birch family. The common *Corylus avellana* yields a useful elastic wood. Cultivated varieties furnish coles, filberts and Barcelona nuts. The tree is found in Europe and Asia; in England, it may grow as high as 30 ft., but is usually much shorter. A twig of the hazel is used by water skivers.

Hazel Grove District of Cheshire. It is 2 m. from Stockport on the L.M.S. Ry. With Bramhall it forms an urban district, and is a centre of the cotton industry. Pop. (1931) 13,300.

Hazlitt William. English writer. The son of a Unitarian minister, he was born at Maidstone, April 10, 1778. He studied to become a minister, but forsook this career for that of an artist. He lived in Paris and painted portraits, but soon, having become friendly with Coleridge, turned to writing, settling in London in 1812. There he worked for *The Morning Chronicle* and other papers, including *The Edinburgh Review* and *The London Magazine*. He died in Frith Street, London, Sept. 18, 1830.

Hazlitt ranks as one of the great English essayists, and as a critic he is also in the first flight. Notable among his books are *Characters of Shakespeare's Plays*, *Lectures on the English Poets*, *Dramatic Literature of the Age of Elizabeth*, and *The Spirit of the Age*. He wrote a long life of Napoleon and many other works. His essays are in his *Table Talks* and *The Plain Speakers*.

Hazlitt had a son, William Hazlitt (1811-93), a public official who found time for a good deal of literary work. He left a son, William Carew Hazlitt (1834-1913), who wrote on many subjects, but notably on Shakespeare and Lamb.

Headache Pain in the cranial part of the head, more deeply seated than that of superficial scalp irritation. Either temporary or persistent, it may result from organic injury, e.g., haemorrhage; from abnormal blood states, e.g., anaemia; or from Bright's Disease or constipation. It may be due to coal gas or other poisoning; exhaustion, due to overwork, excess, or nervous breakdown, including hysterical headache; peripheral irritation, from eye strain or alimentary disturbance, including bilious headache; or congestion of the brain and its envelopes.

Aspirin tablets, two if necessary, will generally relieve a headache (though some people are unable to tolerate them), and a rest in bed in a darkened room is also helpful. Sometimes a cup of tea will be enough to relieve a headache caused by fatigue, and bathing the forehead and eyelids with eau-de-cologne is very refreshing.

A Bilious Headache is relieved by resting in bed and sipping water with $\frac{1}{4}$ teaspoonful of bicarbonate of soda. If attacks are frequent a doctor should be consulted for individual treatment. It should also be remembered that a headache is often the first symptom of some definite disease.

Head Hunting Custom among some primitive peoples of making incursions for procuring human heads as trophies, or individually to qualify for manhood or marriage. It formerly involved ceremonial expeditions. It was largely practised in Borneo and Formosa, where there were cases as recently as 1930, and parts of India and Africa, but it has been to a large extent suppressed.

Headlam Arthur Cayley. English prelate. Born at Whorlton, Durham, Aug. 29 1862, the son of a clergyman, he was educated at Winchester and Oxford. He was ordained and for some years remained in Oxford as a lecturer. In 1896 he was made rector of Welwyn, and in 1903 Principal of King's College, London, where he remained until 1918 when he was appointed Regius Professor of Divinity at Oxford. In 1923 he was made Bishop of Gloucester, having been for 20 years (1901-21) editor of *The Church Quarterly Review*.

Heage Urban district of Derbyshire. It is 3 m. from Belper and is an industrial centre. Pop. (1931), 4054.

Health Soundness of body; in general a condition of bodily efficiency, the opposite of disease. Since about the middle of the 19th century great attention has been paid in Great Britain to all matters affecting the public health and the result is already apparent in increased longevity and other ways. Medical men and women are appointed to look after the health of children. Sanitation is a matter of national concern and in other ways the state does a good deal under the direction of the Ministry of Health. For the same aim, there are several health societies.

The drinking of healths, derived from ancient ceremonies of pouring libations to the gods and drinking to the departed at solemn feasts, survives in the social custom of drinking toasts at banquets. See TOAST.

Health Insurance Scheme for insuring workers against sickness and disablement. It was introduced in Great Britain in 1911 and since 1926 has been linked with a scheme

of old age pensions. Manual workers, with some exceptions, and those non-manual workers whose remuneration is less than £250 a year, must be insured, provided they are between the ages of 16 and 65. The payments are made weekly by affixing stamps to a card. Each person is provided with an insurance card which should be carefully kept.

The whole of the contribution is payable in the first instance by the employer, and must be paid by stamping a card at or before the time of payment of wages for the week for which the contribution is due. The employer is then entitled to recover, by deduction from the wages, the employee's share of the contribution so paid. The employee's share is ordinarily 9d. in the case of men, and 6d. in the case of women, but in certain cases of low wage-earners the employee's share is less. It is also less for those under 14 years of age. The employer's share is 9d. for men and 7d. for women, and he must pay for employees over 65.

The ordinary benefits to which insured persons are entitled in return for contributions in respect of health insurance are—medical, sickness, disablement and maternity benefits.

Medical benefit consists of the provision of medical attendance and treatment, including treatment and attendance for tuberculosis and the provision of proper and sufficient medicines and such medical and surgical appliances (and chemical reagents) as are named in the regulations made by the Minister of Health.

The ordinary rates of sickness benefit are 15s. 0d. a week for men and 12s. 0d. for women, but until a person has been insured for 104 weeks and 104 weekly contributions have been paid in respect of him, sickness benefit is payable at the reduced rates of 9s. 0d. for men and 7s. 6d. for women. The normal rate of disablement benefit is 7s. 6d. a week for both men and women. All these rates are subject to reduction when the member is in arrears.

Disablement benefit is a continuation of the periodical payments at a lower rate in respect of incapacity after the period of sickness benefit has been exhausted. The normal rate is 7s. 6d. a week.

Maternity benefit consists of the payment of a sum of 40s. 0d. on the confinement of the wife or, in the case of a posthumous child, of the widow of an insured man or of a woman whether married or unmarried who is herself insured. Some women, therefore, are entitled to a double maternity benefit.

Most insured persons belong to an approved society, as in this way they obtain the full advantages of the scheme. These societies are formed by trade unions and friendly societies, and payments are made by them. In addition each insured person must have his or her name on the panel of a medical man who receives a certain yearly sum for each patient.

In 1929 no fewer than 17,467,800 persons were insured under the scheme in Great Britain and Northern Ireland. The total income of the fund was £40,000,000 and £33,637,000 was paid out in benefits.

Germany has a somewhat similar system of social insurance. This was in existence before the British one, which, in some respects, was modelled upon it. In 1930 France introduced a national insurance scheme of a somewhat similar character.

Health Board of. Department of the British Government that existed from 1848 to 1858. It was concerned with the

care of the public health, duties which were taken over by the Home Office, then by the Local Government Board and finally by the Ministry of Health.

Health Ministry of. Department of the British Government. It was created in 1919 to supersede the Local Government Board and also take over duties performed by other departments of state, such as national health insurance. It deals with all matters affecting local government including rating and the public health. Its head is the minister, who is a member of the Cabinet and is paid £5000 a year. He is assisted by a parliamentary secretary and a large staff, on which are a number of medical men. The offices are Whitehall, London, S.W.

The Ministry is only concerned directly with England. For Wales there is a Board of Health with headquarters at Cardiff. Scotland has a department of health at 125 George St., Edinburgh, which is under the Secretary for Scotland.

Healy Timothy Michael. Irish politician. Born in Bantry, May 17, 1855, he was educated by the Christian Brothers. In 1871 he went to England and in London he worked as a clerk and *also* as a journalist. In 1880 he was elected M.P. for Wexford, in 1883 for Monaghan, in 1885 for Londonderry, South, in 1887 for Longford, North, in 1892 for Louth, North, and in 1910 for Cork, North-East, a seat he retained until 1918. Healy threw himself keenly into political work and was soon one of the most prominent members of the Nationalist Party and one of the few real orators in the House of Commons. Strongly attached to the Roman Catholic Faith, he was one of the small group who actively opposed Parnell in 1890, and in 1900, when the party was united again, he was expelled from it for his opposition to the United Irish League. In 1922 Healy was selected as the first Governor-General of the Irish Free State, a post he held for five years. He died March 26, 1931. Both an Irish and English barrister, Healy wrote *Letters and Leaders of My Day*.

Heanor Market town and urban district of Derbyshire. It is 141 m. from London by the L.N.E. Ry., and 3½ m. from Ilkeston. Hosiery is manufactured, and there are collieries. Pop. (1931) 22,386.

Hearing One of the five senses. It is awakened by exciting the auditory nerves by sound vibrations conducted from outside by the pair of organs called the ears. Man perceives vibrations ranging from 30 to 50,000 a second. When irregular in duration or intensity, they constitute noise; when regular and periodic they become musical. See DEAFNESS.

Hearst William Randolph. American journalist. Born in California in 1863, his father was a rich mine owner and a senator. In 1886 young Hearst took over *The San Francisco Examiner*, which he developed on the lines of the so-called yellow press, everything sacrificed to sensation. In 1895 he obtained a paper in New York, which he called *The New York American*, and round these two he gathered others until he was the owner of a powerful group, all showing the same features and all, at times, bitterly hostile to Britain. He also secured weekly and monthly papers, including several in London.

Heart Main organ of blood circulation in man and many other animals. The human heart is a hollow, muscular, somewhat

conical four-chambered force pump enclosed in a fibrous bag. It is situated in the chest between the lungs and weighs from 10 to 12 oz. in men and from 8 to 10 oz. in women. The right and left auricles contract, pumping into their respective ventricles venous blood from the body and aerated blood from the lungs; the right and left ventricles contract, pumping venous blood into the lungs and aerated blood into the main blood vessels. These rhythmic contractions, or systole, and dilatations, or diastole, followed by an equivalent pause, constitute the pulse or heart beat, normally 60 to 90 times a minute. The heart is popularly regarded as the seat of the affections.

DISEASES OF THE HEART. The heart is subject to a number of diseases, one of the worst being angina pectoris, which is very painful. Those affected are liable to sudden death, and should avoid extra exertion of any kind. There is a hospital for diseases of the heart in Marylebone, London.

Heartburn Burning sensation referred to the region of the heart and in the throat, caused by too much acid in the stomach, a similar condition to that known as acidity.

Treatment.—1 teaspoonful of bicarbonate of soda in water will give immediate relief, and essence of peppermint is also good. The cause of heartburn is often too much sugar and unsuitable starch (such as new bread). Some people find that fresh fruit or strong tea sets up this condition; the diet should therefore be studied with a view to the elimination of unsuitable foods.

Heartsease Popular and poetic name formerly shared by the wallflower with some species of violets, especially *V. tricolor* and its subspecies *V. lutea*. An infusion of them was deemed to ease the love-sick heart. The word is now confined to the latter, whose mingling of purple, white and golden-yellow in the same flower distinguishes it from one-coloured violets and two-coloured pansy violets. From the three-coloured cornfield weed, which is widely distributed in Britain, Europe, Asia and N. Africa, have been produced many garden varieties, habitually called pansies.

Heat Form of energy. Formerly heat was regarded as a subtle substance which flowed in from an outside source, but it is now known to be a form of energy which is produced from other forms of energy by means of friction or chemical action, as in the case of combustion. Temperature may be regarded as heat potential and determines the transference of heat; it may be compared with level in relation to liquids, pressure in pneumatics and voltage in electricity.

The heat capacity of substances varies, and the amount of heat required to raise the temperature of a unit mass of a substance through one degree is known as specific heat. A rise in temperature of a substance causes expansion, and a further rise to a height varying with the substance causes a change of state from solid to liquid or liquid to gas. The amount of heat needed for such a change of state is known as latent heat.

Heath Rigid, evergreen shrub (*Erica*). It is native to Europe, N. Asia and Africa. British species include the fine-leaved *E. cinerea*, the cross-leaved *E. tetralix*, and others characteristic of S.W. Europe. Greenhouse favourites comprise the brier root, *E. arborea*, and many from South Africa,

besides some Australian heaths. They belong mainly to the order *Erica*, but partly to *Epurcis*.

A stretch of open, uncultivated land is called a heath, especially in the south of England.

Heathcoat John. English inventor. Born at Duffield, Derbyshire, Aug. 7, 1783, he finished his apprenticeship to a blacksmith and went to Nottingham. After a short spell in business in that town he began a manufacture lace in Loughborough, and there in 1808 he invented a machine for making lace, hitherto made by hand. In 1816 his factory was destroyed by the Luddites, so he transferred his business to Tiverton. From 1832 to 1859 Heathcoat was M.P. for Tiverton. He died Jan. 18, 1861. His descendants, the family of Heathcoat-Amory, still carry on the business he founded.

Heather Shrub of the heath order. A native of Europe, Siberia and Greenland, it is also called ling. Unlike true heath (*Erica*) its coloured calyces are longer than the corollas. There is a great deal of it in Scotland and Ireland, where it is used for besoms, thatchwork and as outdoor bedding. The flowers are usually purple, but there is a variety that is white.

Heathfield Village of Sussex. It is on the Cuckmere, 15 m. from Tunbridge Wells and 45 from London, on the S. Rly. Near is Cade Street, where, in 1450, Jack Cade was killed. Pop. 3150.

Heathfield Baron. British soldier. George Augustus Elliott was born at Stobs, Dec. 25, 1717, being a member of the famous border family of that name. He became a soldier and served with the Prussian Army in 1735-36 and then with the British at Dettingen and Fontenoy. In the Seven Years' War he obtained notice and promotion, but it was not until later that he became a national hero. In 1775 he commanded the troops at Gibraltar and was responsible for defending the fortress against French and Spanish attacks for four years (1779-83). In 1787 he was made a baron and he died July 6, 1790.

Heaton Norris District of Lancashire. It stands on the Mersey, adjoining Stockport, on the L.M.S. Rly. The chief industry is cotton manufacture. Near are the districts of Heaton Mersey, Heaton Chapel and Heaton Moor, in the Stockport area.

Heaton Park, Manchester, was at one time the seat of the Earl of Wilton. In 1902 it was bought by the city; the park is now a pleasure ground and the house a museum.

Another Heaton is a district of Newcastle-on-Tyne.

Heaven Name for the visible vault or firmament enveloping the earth in which the celestial bodies appear. Blended with this is the conception of heaven as God's dwelling-place, and the place or state of existence of the blessed after earthly life ends. The doctrine of a heavenly reward for earthly righteousness was found among the Jews and developed in Christian thought. Mohammedans associate heaven with a future of sensual delights. The Christian view is spiritual, not material, heaven being sometimes emphasised as a timeless state which may even accompany present experience.

Heaviside Oliver. English scientist. Born May 13, 1850, he was

at first employed in telegraphy and subsequently devoted himself to electrical investigation, publishing in 1892 his *Electrical Papers*. His work had an important bearing on long-distance telephony. He died Feb. 3, 1925.

The **Heaviside layer** is a conducting layer in the upper atmosphere suggested by him to explain various electro-magnetic phenomena, including the reflection of wireless waves (especially short waves) towards the earth, giving unexpected reception strength at long distances.

Hebburn Urban district of Durham. It is near Jarrow, and stands on the Tyne, being 267 m. from London, by the L.N.E. Rly. Here are engineering works, shipbuilding yards, and other industries connected with shipping. Pop. (1931) 24,125.

Hebden Bridge Market town and urban district of Yorkshire (W.L.). It stands on the rivers Hebden and Calder, 7 m. from Halifax, on the L.M.S. Rly. Cotton goods and other textiles are made here. Near is Hardcastle Crag, a pleasure resort. Pop. (1931) 6312.

Hebdomadal Council Body that governs the University of Oxford. It consists of the chancellor, vice-chancellor, proctors and 18 members elected by congregation.

Hebe In Greek mythology, the goddess of youth, identical with Dia and Juventas. She was the daughter of Zeus and Hera and the cup bearer of the gods. She also attended to Hera's chariot and peacocks and, when Hercules was deified, became his bride.

Heber Reginald. English prelate. The son of a clergyman, he was born at Malpas, Cheshire, April 21, 1783. He went to Brasenose College, Oxford, and was ordained. For a time he was in Oxford as Fellow of All Souls College, but on his marriage he became Vicar of Hodnet in Shropshire. In 1823 he was chosen Bishop of Calcutta and he was there until his death, April 3, 1826. Heber is best known for his hymns. He was successful in writing prize poems at Oxford. He wrote, among other hymns, *From Greenland's Icy Mountains and Holy, Holy, Holy, Lord God Almighty*.

Hebrew Name used for the Jewish race, especially to describe its language, literature and religion. The Hebrew language is Semitic; in it the Old Testament was written. It developed into rabbinic or new Hebrew and then into modern Hebrew. The writing is from right to left.

Hebrews Epistle to the. Book of the New Testament. Although the English Bible attributes it to S. Paul, it bears in the oldest manuscript the anonymous superscription "to the Hebrews," and even that was a deduction by early copyists. Its vocabulary and formal rhetorical style distinguish it from letters admittedly Pauline: neither ancient authority nor modern scholarship accepts his authorship without question. Addressed to Jewish Christians, perhaps in Rome, it has been, at various times, conjecturally attributed to Barnabas, Priscilla, Luke and others.

Hebrides Groups of islands off the west coast of Scotland. They number about 500, but only about 100 are inhabited and they are parts of the counties of Ross and Cromarty, Argyll and Inverness. They are divided into two groups, Outer and Inner, The Minch and Little Minch being a

channel between them. The Inner Hebrides include Skye, Islay, Jura, Mull, Colonsay, Rum, Tiree, as well as Staffa and Iona. The Outer Hebrides include Lewis-Harris, Taransay and Benbecula, the two Uists, North and South, Barra, the Flannan Islands, etc. St. Kilda, now uninhabited, is the most westerly of all. The soil is poor and only oats, barley and potatoes are grown. Sheep rearing and fishing are the main occupations. The total area is about 2800 sq. m. Pop. 100,000.

The islands were ruled by the kings of Norway until 1266, when they were ceded to Scotland. For two centuries they were the domains of the Lords of the Isles, a branch of the Macdonalds. Many of the islanders speak Gaelic and are Roman Catholics. The islands have a literature of their own.

Hebron Town of Palestine. Situated 20 m. south of Jerusalem, 3000 ft. above the Mediterranean, it is one of Palestine's oldest settlements. First called Kirjath-arba (Gen. xxiii.) it was the home of Abraham, Isaac and Jacob. Mohammedans reverence it equally with Mecca and Medina. Captured by Saladin in 1187, the Turkish occupation ceased when the British entered it in 1917. Its walled enclosure of Herodian date shelters, according to tradition, the Cave of Machpelah and the patriarchal remains. Pop. 16,000.

Hecate In Greek mythology, the goddess of night, animal fertility, witchcraft and the underworld. Sometimes discharging the functions of Artemis, she appeared at first single-formed, but afterwards triple-formed, symbolising the moon's three phases. She was represented on pillars at cross-roads, especially at Athens. Black ewe lambs and puppies were sacrificed to her.

Hecatomb In Greece, the sacrifice of 100 oxen or 100 other beasts of one kind. Particularly observed by Lacedaemonians on possessing a hundred cities. Early poets use the word more generally for a great but indefinite public sacrifice, e.g., one of 23 goats and lambs, and even of great destruction by physical visitation.

Heckmondwike Market town and urban district of Yorkshire (W.R.). It is 8 m. from Bradford and is served by the L.M.S. and L.N.E. Rlys. Its industries are the manufacture of carpets, machinery and textiles. Pop. (1931) 8991.

Hecla Volcano of Iceland, in the south of the island, about 70 m. from Reykjavik. It is 5100 ft. high and in crater over a mile round. The volcano is frequently in eruption and there are records of its activity as far back as the 11th century.

Hectare Measure of land in the metric system. It is equal to 2.471 acres. The word means 100 ares, an are being 100 metres.

Hectograph Apparatus for making numerous copies of a document. It consists of a shallow tray filled with a glycerine-gelatin mixture or a preparation of clay. The original, written or typed in special ink, is placed face downwards on the gelatin, which absorbs the ink and from this impression copies may be made.

Hector In Greek legend the eldest son of the Trojan king, Priam, by Hecuba. He was Troy's outstanding champion during the war with the Greeks. After Hector slew Patroclus, Achilles emerged from retirement,

chased him thrice round the walls of Troy, slew him and dragged his body at his chariot wheels to the Greek camp. Entreated by the aged Priam, Achilles gave up the body for burial. Hector's wife was Andromache, and the description of their affection, with their little son, Astyanax, given by Homer in the *Iliad*, is one of the finest passages in Greek or any literature.

Hecuba In Greek legend, wife of Priam, King of Troy, and mother of Hector, Paris, Cassandra and other children. It was her tragic lot, after losing her husband and favourite sons, to be made captive by the Greeks. In one story, utilised by Euripides in his tragedy, *Hecuba*, she wreaked vengeance on the children of Polyneastes after he had murdered her son, Polydorus, in the Thracian Chersonese (Gallipoli), but was turned into a dog and threw herself into the sea.

Hedgehog Genus of insect-eating mammals (*Eriacus*). They are natives of Europe and parts of Asia and Africa. All are able to roll themselves into balls by muscular layers beneath the skin, and also to erect a protective armour of short, prickly spines. The common urchin, *E. europaeus*, with short, naked tail, is a nocturnal feeder, hibernating in winter. Besides insects it consumes snakes, birds' eggs and small mammals. In the garden it is useful for destroying harmful insects.

Hedgeley Moor District in Northumberland. It is 8 m. from Alnwick and is famed for the battle fought there during the Wars of the Roses. On April 25, 1464, a Lancastrian force was beaten by the Yorkists and one of their leaders, Sir Ralph Percy, was killed.

Hedge Mustard Large genus of annual or biennial herbs of the cruciferous order (*stemonium*). They are natives of temperate and cold regions. The common *S. officinale* has leaves variously incised and sprays of small, yellow flowers. Jack-by-the-hedge, *S. alliaria*, has larger white flowers, and a garlic-like odour. The hedge mustard was formerly used in medicine.

Hedin Sven Anders Swedish traveller. Born at Stockholm, Feb. 19, 1865, the son of an architect, he went to several universities in his own land and in Germany. In 1885 he made his first considerable journey through Persia and Mesopotamia, and for the next 30 years he was almost constantly in the more unknown parts of the globe. His chief field was central Asia, where his explorations were most valuable. During the Great War, Hedin showed marked German sympathies and returned the British knighthood conferred upon him in 1909. He has written many books which have been translated into English. These include *Through Asia*, 1898; *Adventures in Tibet*, 1904; *Overland to India*, 1910; *From Pole to Pole*, 1911; *The War Against Russia*, 1915; *Southern Tibet*, 9 vols., 1917-22; *Mount Everest*, 1922; *My Life as an Explorer*, 1926; and *The Gobi Desert*, 1929.

Hedingham Name of two villages in Essex, Castle Hedingham and Sible Hedingham. **Castle Hedingham** is famed for its castle, the seat of the great family of De Vere. The keep remains. Pop. 900.

Sible Hedingham, 60 m. from London, has also a fine old church. It dates from the 14th century and has associations with the family of Hawkwood. Pop. 1750.

Hednesford Market town of Staffordshire. It is 129 m. from London by the L.M.S. Rly., and is 10 m. from Walsall. There are tile works and collieries.

Hedon Borough of Yorkshire (E.R.). It stands near the Humber, 5 m. from Hull, and is served by the L.N.E. Rly. At one time Hedon was a flourishing port. It is still a chartered town. Pop. (1931) 1509.

Hedonism Ethical view of life which regards pleasure, bodily or mental, as the highest good. It developed into the philosophies of Aristippus and Epicurus. Influenced by Christian altruism, modern hedonistic doctrines, represented by Bentham, Mill and others, emphasise the claims of the community, and aim at the greatest happiness of the greatest number.

Heem Family of Dutch painters. David van Heem was born at Utrecht and painted pictures of still life. One is in the National Gallery, London. He died in 1632. His son, Jan David van Heem, was a much greater artist. He is represented in the Wallace Collection, London, and in other famous galleries. He died in 1683, leaving a son, Cornelis van Heem (1631-95) also a painter.

Heere Lucas de. Flemish painter. Born at Ghent in 1531, from 1568 to 1577 he was in England, when he painted portraits of Queen Elizabeth, the Earl of Essex, and others. A curious and allegorical picture by him is at Hampton Court. He also painted in Paris, where he died in 1581.

Hegel George William Frederick. German philosopher. Born at Stuttgart, Aug. 27, 1770, he was educated at Tübingen and began life as a teacher. In 1800 he settled at Jena, where he became a professor, but left that city in 1806 and edited a newspaper at Bamberg. In 1808 he became head of a school at Nuremberg, and in 1816, his reputation as a philosopher being now made, he was chosen Professor of Philosophy at Heidelberg. In 1818 he went to Berlin as professor at the university there and he died Nov. 11, 1831.

Hegel's philosophy is contained in his books, some of which have been translated into English. He was one of the foremost exponents of idealism. He taught that the world of objects is not only related to an intelligence, but can be nothing more than the manifestation or revelation of that intelligence. The material world could not exist of itself. Matter is but the necessary counterpart of spirit and in it spirit reveals and realises itself. God himself is just the self-development of the absolute. The universal principle is the idea; being and the idea are identical. This philosophy was very influential in England and the philosophers who adopted it are sometimes known as the English Hegellians.

Heidelberg Town of Baden, Germany. 54 m. from Frankfurt, and is a railway junction. For some centuries before 1721 it was the capital of the Rhenish Palatinate. On a hill above the town and the river is the castle, the sections of which are named after the princes who built them. The chapel is noteworthy and in the cellars is the great tun of Heidelberg, a vat capable of holding 17,000 gallons. Two bridges cross the river. Pop. (1925) 78,196.

The University of Heidelberg was founded in 1385 and in the 17th century was a famous Protestant centre. It has a fine range of buildings, including a fine library and an

observatory. One block, the gift of some Americans, was opened in 1931. There are some industries and Heidelberg, owing to its educational and other advantages, attracts residents. Pop. 73,000.

The Heidelberg Catechism is a statement of the Protestant faith, drawn up in 1563. It was accepted at the time by both Lutherans and Calvinists.

The Heidelberg Jaw is a jawbone of an early type of man found near Heidelberg in 1907.

Heine Heinrich. German poet. Born at Düsseldorf, Dec. 13, 1797, he went into business at Hamburg, but afterwards left it to study at several universities. In 1825 he took a degree at Göttingen and for the next six years he lived a bohemian life, writing, travelling and giving vent to advanced and unpopular opinions. In 1831 he settled in Paris, which was his home for the rest of his life. There he became a leader of the democratic movement and the centre of an admiring band of literary enthusiasts. After eight years as a complete invalid he died, Feb. 17, 1856. Heine was, by birth, a Jew, but in 1825 he became a Christian.

Heine's fame rests chiefly upon his lyrics, songs of unsurpassed beauty, but he also wrote a great deal of prose. His books on his journeys in the Harz Mountains and by the North Sea were followed by volumes of Corsica and Italy. His *Book of Songs (Lieder)* appeared in 1827, five years after the appearance of his first poems. He wrote on art and literature, especially French, and some short stories. His last works were further volumes of poems, including *Atta Troll* and the volume called *New Poems*.

Heinsius Name of two famous Dutchmen. The scholar, Daniel Heinsius, was born in Ghent, June 9, 1580, and studied under the younger Scaliger. He was Professor of Greek and Latin at Leyden for many years and was regarded as one of the greatest scholars of the age. He edited some of the Latin classics and wrote poems. He died in 1655. His son Nicholas (1620-81), was also a famous classical scholar.

Antonius Heinsius was a Dutch statesman. Born Nov. 22, 1641, he entered the public service and became a trusted servant of William of Orange. When William became King of England, Heinsius became Grand Pensionary of Holland. He was responsible for the conduct of foreign affairs in which he continued William's policy of hostility to France. He remained at the head of affairs in Holland after William's death and died Aug. 3, 1720.

Heir One who inherits anything. Heirs are usually created by will, but in English law the heir is one who succeeds to an estate, not by will, but by a settlement. Before the changes in English law made in 1925, the heir was one who succeeded to real estate by intestacy or entail.

The heir to a title is usually the eldest son of the holder, but, if such does not exist, it may be a daughter or a nephew, according to the patent creating the title or the custom, if it is a very old one. An heir is called an heir apparent; an heir presumptive is the heir provided a nearer heir is not born.

An heirloom is a piece of plate, jewellery, or furniture or something else that descends with an estate to the heir.

Hejaz District of Arabia, sometimes spelt Hedjaz. It is on the Red Sea and with Nejd, forms a kingdom. In it are Mecca, the capital, and Medina and the ports of Jeddah

and Yembo. It covers about 150,000 sq. m. Pop. 1,000,000.

Until 1914 Hejaz was part of the Turkish Empire. In 1916 Hussein, Grand Sherif of Mecca, was recognised as king and in return fought for Great Britain against Turkey. In 1919 he became involved in a struggle with his hereditary enemy, Ibn Sa'ud, the Chief of the Wahhabis. Defeated by the latter, Hussein abdicated in 1924. His son, Ali, did the same in 1925, as Ibn Sa'ud had by then captured Mecca. In 1927 Great Britain recognised Ibn Sa'ud as King of the united kingdom of Hejaz and Nejd. The Hejaz Railway runs from Medina to Amman. See NEJD.

Hejira Arabic word meaning flight. It is used for the flight of Mahomet from Mecca to Medina, which took place in 622. From it the Mohammedans date their era and their year, which begins on July 16. It is sometimes written hegira.

Hel Goddess of Norse mythology. The daughter of Loki and Angurboda, she dwelt below the roots of Yggdrasil, ruled nine worlds and received all the dead. Later myths assigned to her only those who died of age or sickness, and gave her the attributes of darkness, hunger, starvation and misery.

Helen Greek heroine, famous for her beauty. She is said to have been the daughter of Leda, her father being either Zeus or Tyndareus. Castor and Pollux were her brothers. She became the wife of Menelaus, King of Sparta, where she was visited by Paris. The pair fell in love with each other and Helen was carried off to Troy, the result being the Trojan War. When it was ended Helen returned to Sparta with Menelaus, where Homer refers to them as living together in perfect unity.

Helena Saint and Roman empress. Flavia Julia Helena was born in Nicomedia and became the wife of the Emperor Constantius Chlorus. Her son was Constantine the Great. Helena was a Christian and in her old age made a pilgrimage to Jerusalem. A legend says that whilst there, she discovered the Holy Sepulchre and the wood of the true cross. Churches are dedicated to her.

Helensburgh Burgh and watering place of Dumbartonshire. It stands on the Firth of Clyde, at the mouth of the Gareloch, 21 m. from Glasgow and 4 from Greenock, on the L.N.E. Ry. There is a harbour and from here steamers go to places on the west coast of Scotland. Pop. (1931) 8893.

Helenus In Greek legend one of the sons of Priam, King of Troy. He was a soothsayer and was taken prisoner by the Greeks during the siege of Troy. When it was over he went to Epirus with Pyrrhus, whom he succeeded as king.

Helicon Mountain range in Boeotia, Greece. Situated between the Corinthian Gulf and Lake Copais, now drained, its beauty made it the ancient home of the Muses, which had on it a temple and sacred grove. Culminating in Palaiovouni, 5740 ft. high and Zagora, 5010 ft. high, spurs overlooking the valley of the Muses contain the fountains, Aganippe and Hippocrene.

Helicopter Type of heavier-than-air craft. It is assumed that it can ascend vertically by means of an air screw of large diameter mounted on a vertical axis. Although many attempts have been

made with various forms of helicopter, none have proved a complete success as no air screw yet designed will give a forward movement or maintain a balance in variations of the wind. In the nearly related autogiro a forward movement is needed to raise the craft.

Heligoland Island of the North Sea. It is 45 m. from the mouth of the Elbe, belongs to Prussia, and is about 130 acres in extent. At one time it is said to have been quite a large island, covering some hundreds of square miles. The name means Holy Island.

In 1807 the island was taken by Great Britain from Denmark. In 1890 it was ceded to Germany and was soon strongly fortified. The inhabitants were removed and works of enormous strength constructed, making it a base for both warships and aircraft. After the Great War the fortifications were all dismantled and the island became again a pleasure resort, noted for its sea bathing.

HELIGOLAND BIGHT. The waters between the island and the German coast form the Bight of Heligoland. On Aug. 28, 1914, this was entered by a British force of light cruisers and destroyers. These attacked the German ships and there was some hard fighting without decisive results. Later in the day five British battle cruisers under Sir. D. Beatty arrived in the bight and, with their aid, three German cruisers were sunk and the rest driven into port. The British lost 31 killed and one ship, the *Arcturion*, badly damaged. The Germans had 712 killed and 37 taken prisoner.

Heliograph Instrument used for sending messages over long distances by reflecting the sun's rays or artificial light from a movable mirror. In this method of signalling long and short flashes in the Morse code are used. It was employed in the South African War in 1899.

Heliometer Instrument invented in the 18th century for the accurate measurement of heavenly bodies. It was later improved by Fraunhofer and Dollond. The object lens of the heliometer is in two separate halves, each forming a perfect image in the focus of the eyepiece, the images converging or diverging as the half-lenses are moved together or apart.

Heliopolis Ancient city of Egypt. It was the Biblical On (Gen. xli.), and the modern Matariya, a suburb of Cairo. It was devoted to the worship of the falcon-headed sun god Ra; its learned priestly schools attracted Plato and other philosophers. A XII.-Dynasty obelisk, 66 ft. high, erected by Senusert I., still stands.

Heliostat Astronomical instrument by means of which a beam of light is reflected by a mirror in a fixed direction. In the heliostat, a mirror is mounted upon an axis which is placed parallel to the earth's axis, and a clockwork mechanism causes the mirror to rotate following the sun, thus reflecting the sun's rays in an invariable direction.

Heliotherapy Treatment by sunlight. An ancient practice adopted by Finsen (1861-1904) who, however, used artificial light for treating lupus with beneficial results. Recognition of the value of sunlight is now general and sun-bathing is common. Exposure should be gradual and the head should be protected. The effect is that of a general tonic, valuable in children in cases of rickets, and to convalescents from debilitating diseases.

Heliotrope Large genus of herbs and shrubs of the borage order, (*Heliotropium*). Mostly natives of the warmer regions, they bear alternate leaves, and clusters of small, white or lilac salver-shaped flowers. One species is a common European weed.

In Great Britain the heliotrope is an attractive garden plant. This plant is also known as cherry pie and was introduced into Europe in the 18th century.

Helipterum Everlasting flower including the rhodanthes and the acroclimms. They grow in a light, rich soil and a warm, sheltered position.

Helium Colourless gaseous element resembling argon in its inert character. It is not inflammable and next to hydrogen is the lightest gas known; consequently helium is used for inflating the envelopes of airships. To a small extent it is soluble in water—hence its presence in thermal springs. It occurs also as natural gas in Texas, and in many radio-active minerals, especially those containing thorium and uranium. The radiations known as alpha-rays are electrically-charged helium atoms.

Helix Widely distributed genus of air-breathing, belly-footed molluscs of the land snail family. They can withdraw entirely into their spiral shells, which have no horny lids. Among 25 British species are the common garden snail, *H. hortensis*, and the edible snail, *H. pomatia*. Exotic forms are often strikingly variegated. One in Sicily bores into rocks.

Hell Place or state of retribution for impenitent sinners after death or the last judgment. The authorised version of the English Bible frequently uses the word for the Hebrew *Sheol* and the Greek *Hades*, denoting the abode of the departed, as well as for *Gehenna* and *Tartarus*. The doctrine of hell as a place of torment long figured in Christian theology, but has now been abandoned by most Christian people. It was based upon one or two passages in the New Testament, notably in the Parable of Dives and Lazarus and of the wise and foolish virgins.

Hellas Name used for Greece. It included all the districts occupied by Greeks, the Greek world of that day. In addition to Greece proper there were Greek cities in Asia Minor, Sicily and other parts of the Mediterranean coast. It was called Hellas because all were supposed to be descended from Hellen, the son of Deucalion.

Hellebore Genus of perennial herbs of the buttercup order possessing cathartic properties. They are natives of Europe and N. and W. Asia. The large, coloured sepals simulate petals, the true petals becoming honeyed tubes. The stinking hellebore, *H. foetidus*, and the bear's foot (*H. viridis*) grow wild in Britain. The Mediterranean black hellebore (*H. niger*) is the Christmas rose of English gardens.

Hellenism Term used for the culture of ancient Greece. It aims at reproducing in modern life the artistic and literary ideals of the best age of Greece, ideals which, in the opinion of many, represent the highest achievements of the human mind. In London there is a Society for the Promotion of Hellenic Studies. It was founded in 1879 and issues *The Journal of Hellenic Studies*. The address is 50 Bedford Square, London, W.C.1.

Helles Cape on the peninsula of Gallipoli (q.v.). It is on the southern ex-

tremity of the peninsula and guards the entrance to the Dardanelles. Here, in April, 1915, British troops landed, in spite of fierce opposition.

Hellespont Old name for the Dardanelles (q.v.). The story goes that Helle, fleeing from her stepfather, Iphigeneia, fell into the sea and was drowned. Her name was then given to it.

Helm In a ship the wheel or tiller by which a vessel's course is directed. Orders about direction, called helm orders, are issued by those responsible for shipping, but a certain amount of inconvenience is caused by these being different in different countries. The matter was discussed at international conferences in 1913-14 and 1929, but no decision was reached. In 1931, however, it was announced that Great Britain was willing to co-operate with other countries in establishing a uniform international system of helm orders.

Helmholtz Hermann Ludwig Ferdinand von. German scientist. Born at Potsdam, Aug. 31, 1821, he became a doctor and as such served in the Prussian Army. In 1849 he was made Professor of Physiology at Königsberg; in 1855 he moved to Bonn and in 1858 to Heidelberg. In 1871 he was appointed Professor of Physics at Berlin and in 1887 became Director of the Physico-Technical Institute at Charlottenburg. He died there, Sept. 8, 1891.

Helmholtz ranks as one of the great scientists of the 19th century. He was responsible for the invention of the ophthalmoscope. He wrote valuable books on optics and acoustics and his researches into the problem of sight were of the highest importance. He was also an authority on the nervous system. As a physicist, he developed the idea of the conservation of energy, and was a pioneer in examining some of the problems connected with electricity.

Helmsley Market town of Yorkshire. It is 32 m. from York, on the L.N.E. Rly. Near is a ruined castle, and also Duncombe Park, once the seat of the Earl of Feversham, whose eldest son is called Viscount Helmsley; it is now a school for girls. Pop. 1400.

Héloise French abbess. She is known for her love for Abélard, her tutor, to whom she wrote the now famous love letters. See ABELARD.

Helot Class of bondmen in Sparta. They were a Greek people who were enslaved by the Spartans. They worked on the landed estates, paying a fixed portion of the produce, but remaining state property. Sometimes they were employed as light-armed infantry, or as rowers in the fleet. Their cruel treatment occasioned a revolt in 464 B.C. The system disappeared in the 3rd century B.C.

Helsingfors Capital and seaport of Finland, also called Helsinki. It stands on the Gulf of Finland, 250 m. from Leningrad. The harbour is a good one fitted with docks and wharves and there is a considerable shipping trade. In the harbour is a free port. Other industries include sugar refining and tobacco preparing. Pop. (1931) 241,115.

Helston Borough and market town of Cornwall. It stands on the Coper, 11 m. from Falmouth and 303 from London and is reached by the G.W. Rly. There

are some small industries, but the mines near are less prosperous than formerly. An old place, Helston is noted for its annual festival on May 8. On that date the Flora Dance is danced in the streets. Pop. (1931) 2544.

Helvellyn Mountain of England. The second highest in the country, being 3118 ft. high, it is on the border of Cumberland and Westmorland and overlooks Ullswater. The ascent, which is not difficult, is best made from Patterdale.

Helvetii Name of a Teutonic tribe. They lived in the district now called Switzerland and around Avanches. In 58 B.C. they invaded Gaul, but were defeated by Julius Caesar. The republic set up in Switzerland by the French in 1798 was called the Helvetic Republic. Its capital was Lucerne, but it only lasted until 1803.

Hemans Felicia Dorothea. English poetess. She was born Sept. 25, 1793. Some of her poems were extremely popular, for, although never great poetry, they were written with feeling and a sense of harmony and dealt with subjects which everyone could understand. *The Better Land* was, perhaps, the best known. Mrs. Hemans died in Dublin, May 16, 1835.

Hemel Hempstead Borough and market town of Hertfordshire. It stands on the little River Gade, 32 m. from London, on the L.M.S. Rly. The industries include paper making, brewing and tanning. The name is due to the fact that hemp was once grown in the neighbourhood. Pop. (1931) 15,124.

Hemisphere Term literally meaning a half-sphere, but applied in geography to the two equal divisions of the earth's surface. These are separated by the equator and known as the northern and southern hemispheres. In the northern hemisphere there is a greater distribution of land surface than in the southern.

Hemlock Biennial* umbelliferous herb. It is native in Europe, Asia, and N. Africa, and is common in Britain. Its stout, shining, furrowed, purple spotted stem bears triangular, much-divided leaves, and small white flowers in compound umbels. It is poisonous, and in Greece a decoction of it was given to those sentenced to death, e.g., to Socrates. To-day the alkaloid prepared from it and called conine is used in medicine.

Also a name given in North America to coniferous trees of the pine family.

Hemp Name given to the fibres of a herb of the nettle order (*cannabis sativa*). The plant is cultivated for this fibre, which is used for making rope, belting and the like. It grows in a cool, moist climate, and the stems, when ripe, are pulled and subjected to much the same treatment as flax. The best is grown in Italy, and a little in England and Ireland. It also produces a resinous secretion, which is made into the drugs known as bang and hashish, both being narcotics and hypnotics. It is also used in medicine. The oily seeds are used for bird food and cattle cake.

The name is also used for fibres of other plants, e.g., Manila hemp and sisal hemp, while other trees yield Indian hemp and African hemp, all being used for similar purposes.

Two other plants bearing the name are the hemp agrimony and the hemp nettle. Agrimony grows to a height of 4 ft. and bears clusters of purple flowers. It belongs to the

order *compositae*. The nettle bears white or ivory flowers. It belongs to the order *labiales*.

Hemsworth Urban district of Yorkshire (W.R.). It is 8 m. from Wakefield and 168 from London, by the L.N.E. Rly. It is a coal mining centre. Pop. (1931) 13,001.

Henbane Herb of the nightshade order (*hyoscyamus niger*). It is a native in warm and temperate Europe, Asia and Africa, and is poisonous to domestic fowls. It is foetid and viscid, with a stout stem, large leaves and funnel-shaped, purple-veined yellow flowers. Besides this annual form a biennial one grows in the second season. Both leaves and seed yield alkaloid poisons, hyoscyamine and hyoscyne, used as sedatives and anodynes; large doses cause paralysis. The plant grows wild in England and Ireland.

Henderson Arthur. British politician. Born in Glasgow, Sept. 15, 1863, he was apprenticed to an engineering firm in Newcastle-on-Tyne and worked for some years as a moulder. He soon became a leading trade unionist and a member of the city council and in 1895 was suggested as a candidate for parliament. Soon he moved to Darlington where he was equally active, being mayor in 1903. In that year he was elected M.P. for the Barnard Castle Division, a seat which he retained until 1918. In 1919 he was elected for Widnes; in 1923 for Newcastle East, and in 1924 for Burnley, where he was defeated in 1931.

Henderson began his career as a minister when in 1915 he was made President of the Board of Education in the coalition ministry. In Dec. 1916, he became minister without definite office, but in Aug. 1917, after a visit to Russia, he resigned. In 1924 he was Home Secretary in the first Labour Ministry and in 1929 he became Foreign Minister, a post he filled with considerable success. He was Chairman of the Parliamentary Labour Party, 1908-10 and 1914-17 and its chief whip, 1921-24 and 1925-27. In 1931 he resigned with the other members of the ministry and became leader of the Labour Party in its opposition to the National Government under Mr. Ramsay MacDonald, retaining also control of the party machine. In 1932 he was chairman of the disarmament conference at Geneva. In 1923-24 two of his sons sat in parliament: Arthur for Cardiff South, and William Watson for Kenfield. They were re-elected in 1929, but lost their seats in 1931. A third son was killed in the Great War.

Hendon Urban district of Middlesex. It is 8 m. to the north-west of the city and is served by the L.M.S., L.N.E. and Tube Railways. Hendon has become a great flying centre. Here is a large air park, as well as aircraft works, and in June an annual air pageant is held. Pop. (1931) 115,682.

Hendon is also the centre of a rural district and in 1929 the council of this bought Headstone Manor House, once a residence of the archbishops of Canterbury, for public purposes.

Hengist Anglo-Saxon leader. All that is known about him is that in A.D. 449, with his brother, Horsa, he landed at the head of some Angles at Ebbsfleet in Kent. He defeated the Britons and settled in Kent, where he reigned over a small kingdom until his death in 488. He is said to have been invited by the British king Vortigern, and is regarded as the founder of the Anglo-Saxon rule in England.

Hengistbury Head Headland on the coast of Hampshire. It is about 2 m. to the south of Christchurch and from it magnificent views are obtained. In 1930 it became the property of the Borough of Bournemouth.

Hengoed District of Glamorgan, Wales. It is 31 m. from Neath and 160 from London, on the G.W. Rly. It is a populous coal mining district.

Henley William Ernest. English writer. Born at Gloucester, Aug. 23, 1819, he was educated at the grammar school there. After being in a hospital in Edinburgh, where he was treated for tuberculosis, he settled in London, where he soon made a position for himself. As editor of *The National Observer* he gathered round him a band of young writers, to whom he imparted something of his own virile personality and maintained, until broken, a close friendship with R. L. Stevenson; the two wrote four plays together. Henley's literary work was chiefly essays and criticisms in *The National Observer* and other papers and volumes of verse, *A Book of Verses*, *The Song of the Sword* and *For England's Sake*. He died at Woking, July 11, 1903.

Henley-on-Thames Borough and market town of Oxfordshire. It stands on the north side of the Thames, 36 m. from London, on the G.W. Rly. Henley is chiefly known for its boating facilities and the annual Henley Royal Regatta (q.v.). The headquarters of the Leander Club and the Phyllis Court Club are here. Brewing is an industry. Pop. (1931) 6618.

Henley-in-Arden is a little town in Warwickshire. It is 100 m. from London and 17 from Birmingham, on the G.W. Rly.

Henley Regatta Principal rowing event in England. It is held every July and attracts the best oarsmen from all over the world. The first meeting was held in 1839. The chief races are the Grand Challenge Cup, the Ladies' Challenge Plate and the Thames Challenge Cup for crews of eight. For crews of four there are the Stewards' and the Visitors' Challenge Cups. The Silver Goblets are for the best pair of oarsmen and the Diamond Sculls for single scullers. The Amateur Rowing Association controls the meeting.

Henna Cosmetic used for staining nails, eyelids and hair. It contains the powdered leaves of the Egyptian privet, *Lawsonia inermis*, a tropical looscstrife.

Henrietta Maria English queen, wife of Charles I. A daughter of the French king, Henry IV., she was born in Paris, Nov. 25, 1609. In 1621 a marriage was arranged between her and the English prince, Charles, and in May, 1625, they were married by proxy in Paris, Charles being then king. The young queen then came to England and for 20 years the pair lived together, on the whole quite happily.

A strong Roman Catholic, Henrietta took part in public affairs and her actions, especially in favouring members of her own faith, undoubtedly added to the many difficulties of her husband. At the outbreak of the Civil War, she got a little help for Charles in France and the Netherlands, but in 1642 she left England and the pair never met again. In spite of poverty and insecurity generally, she worked for his cause and later for that of her sons, but without any great success. After the

restoration of Charles II., she visited England, but she lived mainly in France, dying at Colombes, Aug. 31, 1666.

Henry Electrical unit. It is named after the American physicist, Joseph Henry (1797-1878) and is the practical unit of self inductance.

Henry I. King of England. The third son of William I., he was born at Selby in 1068. In 1100, after his brother, William II.'s death and when Robert was on crusade, he ascended the throne. He reigned for 35 years on the whole successfully and is regarded as the founder, or at least the able developer, of the English system of justice.

He carried on a war with Robert, whom he defeated at Tinchebrai in 1106, afterwards keeping him in prison for the rest of his life. Then he secured Normandy, but further fighting was necessary in order to keep it. He also quarrelled with the church, represented by Anselm, over the question of investitures.

Henry married Matilda, daughter of Malcolm, King of Scotland, and a descendant of the earlier English kings. His only legitimate son, William, was drowned in the White Ship in 1120; consequently he left the throne to his daughter, Matilda or Maud. Henry died, Dec. 1, 1135.

Henry II. King of England. He was born at Le Mans, March 25, 1133, his father being Geoffrey, Count of Anjou, and his mother, Matilda, daughter of Henry I. of England. In 1153 a treaty was made by which Henry was recognised as Stephen's successor on the throne. He became King of England in 1154, two years after he had married Eleanor, Duchess of Aquitaine, the divorced wife of Louis VII. of France.

Henry reigned over England and his considerable inheritance in France for the next 35 years. In England he restored order after the anarchy under Stephen and, taking up some of the ideas of his grandfather, Henry I., gave the country a number of legal reforms which made for good government. This led him into his famous quarrel with the church and Thomas à Becket, whose murder, one of the central facts of his reign, led to the king's humiliation and to the thwarting of his plans for making the clergy amenable to civil law.

In France Henry was chiefly occupied in fighting Louis of France and his own rebellious nobles. In 1173 he had to face a rebellion in England, in which his eldest son, Henry, took part. His other three sons, Richard I., John and Geoffrey, at one time or another rebelled against him. He brought Ireland under the rule of England and was one of our greatest kings. He died at Chinon, July 6, 1189.

Henry III. King of England. Born at Winchester, Oct. 1, 1207, he was the son of King John and his wife, Isabella of Angoulême. He was only 9 years old when, in 1216, he became king, and he reigned for the long period of 56 years. Until 1227 he was a minor, the land being ruled meanwhile by William Marshal, Earl of Pembroke, and Hubert de Burgh. His personal rule, on the whole, was disastrous. He was influenced by favourites and his marriage in 1236 with Eleanor of Provence led to the arrival of many needy foreigners who were soon filling the chief positions in the land. Already restive at these proceedings, the barons, in 1258, compelled Henry to hand over the government to themselves, with Simon de Montfort as their leader. A little later war

broke out. Henry was defeated and made prisoner at Lewes in 1264, but in 1265 his son, Edward, turned the tables on the barons at Evesham. Henry lived on until Nov. 16, 1272, with Edward as the real ruler of the country.

Henry IV. King of England. The eldest son of John of Gaunt, Duke of Lancaster, he was born at Bolingbroke in Lincolnshire, April 3, 1367. He became Earl of Derby, and, as a cousin of the king, Richard II., began to take part in public life, being one of the group called the lords appellant, who put a curb on the king's power.

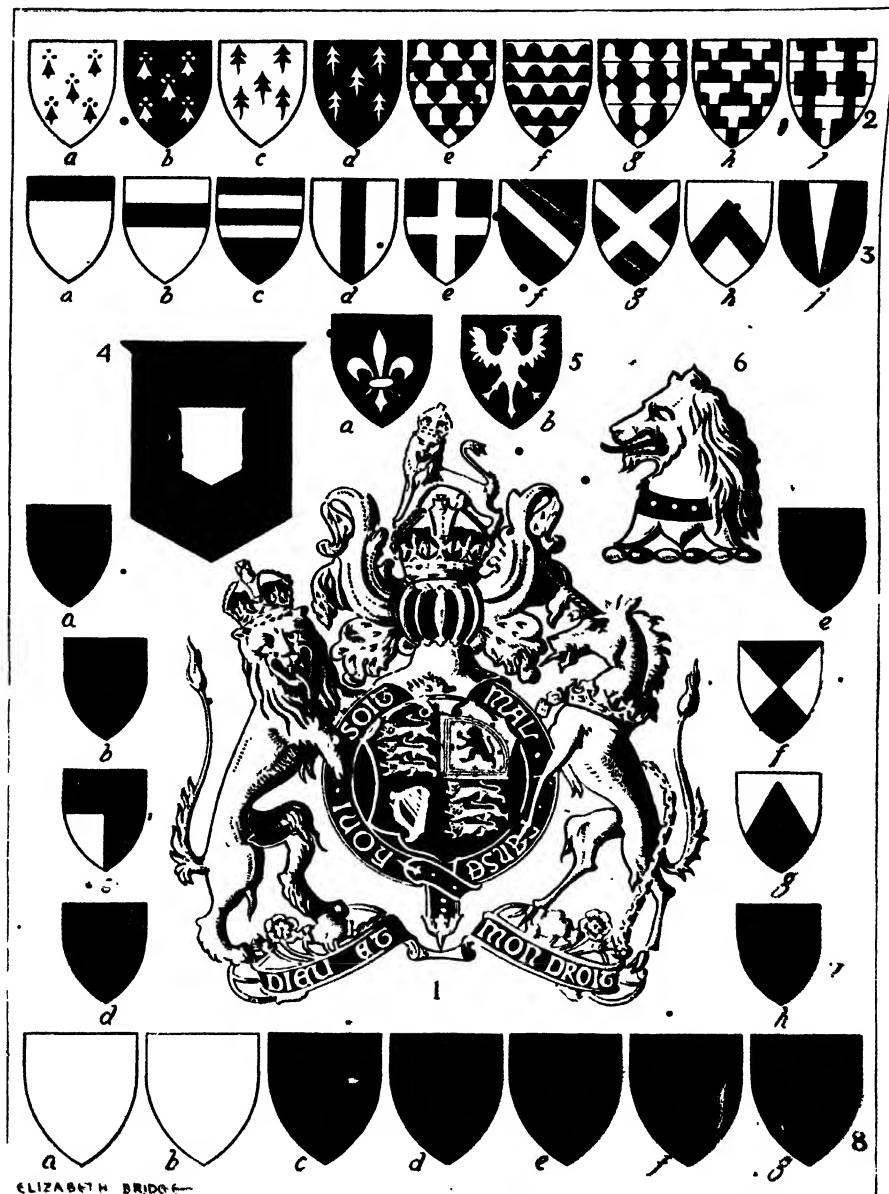
In 1398, the year before he succeeded his father as Duke of Lancaster, he was sent into exile by Richard II. and on Gaunt's death the king seized his lands. Henry, therefore, returned, collected a small army in Yorkshire, and, Richard being in Ireland, he had no difficulty in securing the throne. His title to it was admitted by parliament and, as the first of the three Lancastrian kings, he began to reign in 1399.

Henry's reign lasted for 13 years. It was marked by rebellions, one quite serious, and the persecution of the Lollards. He died at Westminster, March 20, 1413. Shakespeare wrote two plays on Henry IV.

Henry V. King of England. Born at Monmouth, Aug. 9, 1387, he was the eldest son of Henry IV. He was made Prince of Wales in 1399 and soon began to take part in public affairs, including wars in Wales. In 1413 he became king and, having put down a rising of the Lollards, he claimed the throne of France and went with an army to make good his imaginary right. In Oct., 1415, he won the great victory of Agincourt, on which his fame as a soldier rests, and between then and 1420 he conquered the whole of Normandy, his task being made easy by the civil war in France. In 1420 the French king agreed to the Treaty of Troyes, by which Henry was made regent or recognised as the next king. On Aug. 3, 1422, he died at Vincennes. He married Catherine, a daughter of the King of France, and left an only son, Henry VI.

Henry VI. King of England. He was born at Windsor, Dec. 6, 1421, the only son of Henry V., and became King of England and France in 1422. These lands were ruled for him by his uncles, the Dukes of Beaufort and Gloucester, as regents, but after a long and costly warfare, his French realm was completely lost. In 1415 he married Margaret of Anjou, but before then the faction fights which led to the Wars of the Roses had begun. Henry was quite unable to keep order between the factions, especially after 1453, when he became insane. Richard, Duke of York, was named protector and in 1455 the civil war began. The cause of Henry was bravely championed by his wife, but in 1460 he was made a prisoner. York then claimed the throne, but it was decided that Henry should rule during his lifetime, his rival and not his son succeeding when that event occurred.

Under these conditions the war was quickly renewed. York was killed at Wakefield and his son made himself king in 1461 as Edward IV. In 1465 Henry, who had been deposed, was again taken prisoner, but in 1470, by a sudden reversal of fortune due to Warwick, he was restored but only for a few months. Edward IV. returned from his exile, crushed the Lancastrians and put the Prince of Wales and later his father, Henry VI, to death, May 21, 1471.



ELIZABETH H. BRIDGE

HERALDRY.— 1. Royal Arms. 2. Furs (*a* Ermine, *b* Ermines, *c* Erminois, *d* Pean, *e* and *f* Vair, *g* Counter-Vair, *h* Vair-potent, *i* Vair-counter-potent). 3. Ordinaries (*a* chief, *b* fesse, *c* bar, *d* pale, *e* cross, *f* bend, *g* saltire, *h* chevron, *i* pile.). 4. Inescutcheon. 5. Charges (*a* Fleur-de-lis, *b* Eagle). 6. Crest. 7. Primary Divisions (*a* pale, *b* fesse, *c* cross, *d* bend, *e* sinister, *f* saltire, *g* chevron, *h* tierce). 8. Tinctures (*a* or, *b* argent, *c* gules, *d* azure, *e* sable, *f* vert, *g* purpure).

Henry is chiefly regarded as the founder of King's College, Cambridge, and of Eton College. It has been proposed to canonise him. On him Shakespeare based three of his plays.

Henry VII. King of England. Born at Pembroke, Jan. 28, 1457, his father was Edmund Tudor and his mother Margaret Beaufort, a descendant of John of Gaunt, Duke of Lancaster. He inherited from his father the earldom of Richmond and in 1485 claimed the throne. He collected an army, defeated Richard III. at Bosworth and was crowned. Parliament accepted him and he married Elizabeth, daughter of Edward IV.

Henry, the first of the Tudor kings, reigned for 24 years. He crushed two pretenders to the throne, but his great work was to lay the foundation of the Tudor monarchy, which he did by husbanding carefully his revenues, keeping the peace, encouraging trade with the Netherlands and crushing the last remnants of baronials independence. He died at Richmond, April 22, 1509. His son was Arthur and Henry VIII. His daughter, Margaret, married James IV. of Scotland and so brought about the union of the crowns in 1603.

Henry VIII. King of England. The second son of Henry VII. he was born at Greenwich, June 28, 1491, and became heir to the throne when his brother, Arthur, died in 1502. Well educated, with abilities above the average, possessing an engaging and vigorous personality and wide human interests, he was destined to make his mark upon the history of England and the world. Moreover, these same qualities made him popular with his people and enabled him to carry out his autocratic ideas. He became king in 1509 and at once married Catherine, daughter of Ferdinand and Isabella of Spain, the widow of his brother, Arthur.

The first period of Henry's reign was occupied largely with foreign affairs. The emperor, Charles V. and Francis I. of France both sought his aid, which he gave first to one and then to the other, but the wars in which he took part were not very serious matter, except, perhaps, for the defeat of the Scots at Flodden in 1513. At this time Henry had for his adviser Thomas Wolsey, archbishop and cardinal. In 1521 the king showed his interest in church matters by writing a book on the sacraments. This controverted the views of Luther and won for its author the title of Defender of the Faith.

The second period of his reign began about 1526, when Henry fell in love with a lady at court, Anne Boleyn. To marry her he decided to get a divorce from Catherine. This led to the rupture between the Church of England and Rome and to the fall of Wolsey. In 1529 a parliament met, which, at the behest of the king, carried out the necessary changes. Henry was made supreme head of the Church and the power of the pope in England was destroyed. Bishops were in future appointed by the king and payments to Rome were forbidden. The work of reform was completed by the dissolution of the monasteries, which provided money for the lavish expenditure of the sovereign. The dissolution of the monasteries led to the rising called the Pilgrimage of Grace, but this was soon suppressed. Meanwhile, in 1533, Henry had married Anne Boleyn, the earlier marriage being declared invalid by parliament.

In 1536 Anne Boleyn, charged with crimes against the king, was executed and Henry

married Jane Seymour. She died very soon, and now anxious to ally himself with the German Protestants, he took for his fourth wife Anne, a princess of Cleves. She did not please him and was soon put away, this leading to the execution of the king's adviser, Thomas Cromwell, in 1540. Henry's fifth wife was Catherine Howard, a niece of the Duke of Norfolk, who was beheaded for infidelity. The sixth was Catherine Parr, who survived him. Henry died Jan. 28, 1547. He left three children, each by a different wife, each of whom succeeded to the throne. They were Edward VI., Mary and Elizabeth.

Henry Name of four kings of France. Henry I. was a son of Robert I. and a grandson of Hugh Capet. He ruled from 1031 to 1060, spending time and energy fighting William, Duke of Normandy, and other of his vassals.

Henry II., a son of Francis I., reigned from 1547 to 1559. He is known as the husband of Catherine de Medici and the father of three kings, Francis II., Charles IX. and Henry III. His daughter married Philip of Spain and Henry IV. of France. He was also the lover of Diane de Poitiers. Wounded in a tournament, Henry died July 10, 1559.

Henry III., the third son of Henry II., was chosen King of Poland in 1573, but he soon left that country and in 1574 became King of France. His reign was one of civil war and on Aug. 1, 1589, he was murdered.

Henry IV. King of France. Born at Pau, Dec. 14, 1553, he was a son of Anthony, a member of the Bourbon family and his wife Jeanne d'Albret, Queen of Navarre. Although a Protestant he was educated at the court in Paris and in 1572, just before the Massacre of St. Bartholomew, he married Margaret, daughter of Henry II., King of France. In 1572, also, he became King of Navarre, but his time was chiefly spent in fighting for the Huguenot cause in France. In 1589, when Henry III. was murdered, he was crowned King of France, but his kingdom remained to be conquered. He defeated his Roman Catholic enemies in battle at Ivry and Arques, took Paris and then declared himself a Roman Catholic. In 1598 he granted the Protestants toleration by the Edict of Nantes, and his position remained unshaken until he was murdered, May 14, 1610.

Henry Name of seven German kings. Duke of Saxony before he was chosen German King in A.D. 919. He reigned until his death in 936 and was succeeded by his son, Otto the Great. Henry II. was a duke of Bavaria who was chosen king in 1002. He was crowned Emperor in Rome in 1014 and died in 1024, being canonised in 1146. Henry III. succeeded his father, Conrad II., as emperor in 1039 and reigned until his death in 1056.

Henry IV., a son of Henry III., became king in 1056, when he was only six years of age. In 1069 he began to rule as well as reign, and he passed a long life mainly in a quarrel with the Church about investitures (q.v.). In 1074 he submitted to Gregory VII. at Canossa, but the struggle was soon renewed and Henry was fighting his old enemies, which included his own sons, when he died, Aug. 7, 1106.

Henry V., a son of Henry IV., continued the struggle about investiture until 1122, when he came to terms with the pope. He died in 1125. Henry VI. was a member of the Hohenstaufen family, the son of Frederick I. and the

father of Frederick II. He reigned from 1190 to 1197, his time being chiefly occupied in Sicily, which kingdom came to him through his wife, Constance. **Henry VII.**, a count of Luxembourg, was king from 1308 to 1313.

Henry Prince of Portugal, called the Navigator. A son of John I. and, through his mother, a grandson of John of Gaunt, Duke of Lancaster. He was born in Oporto, March 4, 1394. He had a little experience of war, but most of his life was spent at Sagres. There he built an observatory and in other ways aided the infant science of navigation, as well as finding money for a succession of voyages of exploration to the Asian and African coasts. Some very important discoveries resulted from the voyages organised by him. He died Nov. 13, 1460.

Henry Joseph. American scientist. Born at Albany, Dec. 17, 1797. He was educated there and became a teacher. He devoted a good deal of time to experiments with electricity, and in this way discovered the use of the electric current in telegraphy and for other purposes, whilst wireless telegraphy also owes something to him. In 1846 he was made secretary to the Smithsonian Institution at Washington. He died May 13, 1878.

Henry Matthew. English divine. A son of Rev. Philip Henry, (1631-96), one of those who were rejected from their livings by the Act of Uniformity in 1662. He was born in Flintshire, Oct. 8, 1662. He became a Nonconformist minister at Chester in 1687, and in 1712 moved to London to a church in Mare Street, Hackney. He wrote a popular *Exposition of the Old and New Testaments*, and died June 22, 1714.

Henry O. Name taken by an American writer. Born in N. Carolina. Sept. 11, 1862, William Sydney Porter lived a varied life. He was editor of a humorous paper, *The Rolling Stone*, at Austin, Texas, and after a spell as a bank official returned to journalism at Houston. He was there sentenced to a term of imprisonment on a charge of embezzlement. By then he had begun to write, and during the next few years he made a name by his short stories. These have been published in a number of volumes; many consider him one of the greatest of short story writers. His works include *The Four Million*, *Heart of the West*, *The Trimmed Lamp* and *The Gentle Grafter*. He died in New York, June 5, 1910.

Henry Patrick. American statesman. Born in Virginia, May 29, 1736, he became a lawyer after having tried store-keeping and farming. His eloquence made him a success in his profession, and, as a member of the legislature of Virginia, he advocated taking up the struggle against Great Britain. He took part in the events that led to the union of the Colonies and the Declaration of Independence. In 1788 he was chosen Governor of his state (Virginia). In 1791 he retired from public life and on June 6, 1799, he died.

Henson Herbert Hensley. English prelate. Born in London, Nov. 8, 1863, he was educated at Oxford, where he won a fellowship at All Souls College. He was ordained in the Church of England and in 1887-88 was head of Oxford House, Bethnal Green. From 1888 to 1895 he was vicar of Barking; from 1895-1900, incumbent of St. Mary's Hospital, Ilford; and from 1900

to 1912, canon of Westminster and rector of St. Margaret's. In 1912 he was made Dean of Durham; in 1918, Bishop of Hereford; and in 1920, Bishop of Durham.

A broad churchman, deeply read in church history, a fearless thinker and a powerful controversialist, the bishop occupies a unique position in the Church of England. He has written a great deal, both books and articles, and has set forward clearly and incisively his ideas of the creeds in modern life, the relations between church and state and other matters. His powers were seen at their best during the debates on the revised prayer-book in 1926-27. After its rejection by the House of Commons he came forward as an advocate of disestablishment.

Henty George Alfred. English writer. Born at Trumpington, near Cambridge, Dec. 8, 1832, he went to school at Westminster, and then to Caius College, Cambridge. He was in the Crimea during the war in connection with the supply of food. Having become a correspondent for *The Standard*, he saw fighting in Italy with Garibaldi in 1859-60; in the Franco-German War, 1870-71; and in Serbia in 1876. He made his name, however, by his stories for boys, which were long the most popular of their kind. Most of them deal with adventures in one or the other of England's many wars. They include *The Lion of the North*, *The Cat of Bubastes*, *The Young Carthaginians*, *Out on the Pampas* and about 70 others. He died at Weymouth, Nov. 16, 1902.

Hepatica Genus of ranunculid plants, related to the anemone. They are natives of Europe and grow easily in Britain. They resemble a buttercup and flower in early spring, in several shades of colour, i.e., white, blue and red. The leaves are thick, divided into thin oval lobes and often persist through the winter.

Hephaestus In Greek legend the god of fire and metal working. He thus corresponds to the Roman Vulcan. He was the son of Zeus and Hera, and is always represented as being lame. The story is that his mother, disliking him, threw him off Olympus and so damaged his feet. The making of famous suits of armour, such as that worn by Achilles, is attributed to Hephaestus, who had his workshops in Lemnos or in Sicily.

Hepplewhite George. English cabinet maker. He was apprenticed to George Gillow, and afterwards set up in business for himself in London. His work is characterised by delicacy, grace and lightness of workmanship, and some of his effects were obtained more by inlaying than by carving. The Hepplewhite style of furniture was generally curvilinear, except in cabinets; in chairs the shield back was very common. He died in 1786.

Heptarchy Word meaning seven kingdoms, from the Greek *hepta*. It is used for the seven kingdoms into which England was at one time divided and also, for the period between the arrival of the Anglo-Saxons in 449, and the 9th century. The seven were Kent, Essex, Wessex, Sussex, Mercia, E. Anglia and Northumbria.

Hera Greek goddess. A daughter of Cronos and Rhea, she was both sister and wife of Jupiter. She thus ranks as the queen of the gods. Her children included Mars (Ares), Hephaestus (Vulcan), and Hebe.

Many other legends have gathered around her name. She was one of the three beauties who appeared before Paris, and her vengeful disposition, at the affront then put upon her by him, caused her to side with the Greeks against the Trojans. Hera, who is the Roman Juno, was the goddess of childbirth.

Heraclitus Greek philosopher. The founder of metaphysics, he pronounced the theory that fire, the first principle, is a rational element governing the universe, from which all things evolve and to which they ultimately return. He contended that change is the only stable thing and that not even the gods would escape destruction.

Heraclius Roman emperor. Born in Cappadocia about 575, the son of a high official, he was renowned as a soldier. In 610 he defeated the Emperor Phocas and made himself his successor at Byzantium. His reign was passed in warfare, first with the Avars and then with the Persians, in both of which he was successful; his greatest victory being over the Persians near Nineveh in 627. He then turned against the Arabs, but there he was less successful, and much of the empire in the west had been lost when he died in 642.

Herald Officer entrusted in time of war with messages to the enemy, challenges, peace offers and the like. Such existed in Greek and Roman times, and there are many references to their duties in classical literature. They were allowed to come and go unharmed, and to facilitate their work wore a distinctive mark of some kind.

Heralds were employed in the wars of the Middle Ages, and in the days when knight-hood flourished were given new duties, these being connected with the bearing of arms. All matters of this kind were settled by heralds, and in this capacity they exist to-day.

COLLEGE OF HERALDS. In England, Richard III., in 1483, made the heralds into a college, also called the College of Arms. This still exists, and to it belong the six heralds, Windsor, Lancaster, York, Somerset, Chester and Richmond. There was a college of heralds in Ireland, and in other European countries, all being concerned with the bearing of arms.

To-day the word is used as the name of a newspaper, e.g., the *Glasgow Herald* and the *Daily Herald*.

Heraldry Term denoting generally all the business of heralds, specifically the art and science of genealogy, precedence, honorary distinctions and armorial bearings. In the Middle Ages, after knights assumed them, personal devices extended rapidly. The marshalling of badges, crests, coat armour, pennons, helmets and other distinctive devices became important.

Armillar insignia are traced upon a shield or escutcheon, in a tincture chosen from two metals, five colours and eight furs. The signs charged on the shield include various simple forms called ordinaries, e.g., bends, chevrons, together with subordinaries, e.g., orles, lozenges. Used at first to distinguish knights in the field, heraldic insignia came to appear on personal apparel, books, seals, signet rings, windows, furniture and tapestry hangings. Ten degrees of coats of arms are recognised: sovereign states, claims of dominion over another, communities, certain offices, e.g., bishops, succession, assumption, paternal inheritance, matrimonial alliance, adoption and concession. See COAT OF ARMS.

Herat City of Afghanistan. It stands in the mountains, being about 2500 ft. above sea-level and at the junction of important trading routes between India, Russia and Persia, 400 m. W. of Kabul. Carpets and silks are made. Pop. 30,000.

Herb Plant whose stem, lacking permanent woody tissue like shrubs and trees, dies down annually. The stem grows from the root annually, biennially or perennially. Pot herbs are boiled, wholly or partly, in pots, e.g., the carrot and turnip.

In cooking and pharmacy the word denotes any plant, sometimes shrubby, used for flavouring, e.g., mint, parsley, or in domestic remedies, e.g., tansy, horehound. These are dealt in by herbalists, who are, however, a diminishing class.

Herbals are books describing the qualities and uses of these plants.

Herbarium Collection of preserved plants mounted on loose sheets of paper and systematically arranged, also called *hortus siccus*. The herbarium at Kew is unrivalled. The British Museum (Natural History Department), and many universities have one. After drying in absorbent paper, specimens are gummed to stout sheets and stored in shelved cabinets.

Herbart Johann Friedrich. German philosopher. Born at Oldenburg, May 4, 1776, he was educated there. In 1805 he lectured in philosophy at Göttingen, and in 1809 at Königsberg, where he succeeded Kant. He remained there until 1833, and died at Göttingen, Aug. 14, 1841.

Herbart's philosophy was based on that of Kant. He is better known, however, for his influence on education. He imbibed the ideas of Pestalozzi, his friend, and did a good deal to make education and educational methods a science. His book has been translated into English as *Education and Science*.

Herbert English family. It came into prominence in the 15th century, when a Herbert became the owner of the great castle at Raglan. In 1468 Sir William Herbert became Earl of Pembroke, a title which soon became extinct. The existing Herberts are descended from him through an illegitimate son, Richard, whose descendants obtained at least five earldoms in addition to other titles. Of these the earldom of Torrington is extinct. The family still holds the united earldoms of Pembroke and Montgomery, the earldom of Carnarvon and the earldom of Powis. See PEMBROKE, Earl of.

Herbert Alan Patrick. English author. Born Sept. 24, 1890, the son of a civil servant, he was educated at Winchester and New College, Oxford, and became a barrister. He served during the Great War in Gallipoli and France with the Royal Naval Division, and when it was over made a name by his contributions to *Punch*. In 1924 he joined the regular staff of that paper. Herbert's books include *Sea Shanties*, *Plain Jane*, *Misleading Cases*, *The Trials of Topsy* and *The Water Gipsies*. In 1931, with T. S. Dunhill, he produced a successful musical comedy, *Tantivy Towers*.

Herbert George. English poet. Born in Montgomery, April 3, 1893, he belonged to the famous border family. He went to Westminster School and Trinity College, Cambridge, and was public orator at the university, 1919-27. Ordaired, he held a living in Huntingdonshire, but in 1930

he went to Bemerton near Salisbury, with which place his name is always associated. He died there and was buried in the church, March 3, 1633. Herbert's poems are in a volume called *The Temple*, first printed in 1633. It had an extraordinary popularity; some of the verses are religious poetry at its best. He also wrote a manual, *A Priest to the Temple*, or *The Country Parson: His Character and Rule of Holy Life*. Herbert won a great reputation by his saintly life. John Donne was among his friends.

Herbert of Cherbury Lord. English philosopher. Born March 3, 1583, Edward Herbert belonged to the famous border family and was a brother of George Herbert. He studied at Oxford, saw military service in Germany and was much abroad. Later he was sent by James I. as ambassador to France. He was made a baron in 1629, and in 1642 took the side of the king, but later joined the parliamentarians. He died Aug. 20, 1633. Herbert was a considerable scholar and put forward the system of natural religion, which caused him to be regarded as the first of the English deists. This is contained in his *De Religione Gentilium*. He also wrote an account of the reign of Henry VIII., an *Autobiography*, some poems and a treatise (*De Veritate*) on truth.

Herbert of Lea Baron. English politician. Born Sept. 16, 1810. Sidney Herbert was a younger son of the 11th Earl of Pembroke. He went from Harrow to Oriel College, Oxford, and in 1832 became M.P. for S. Wiltshire. In 1834, as a follower of Sir Robert Peel, he was made Secretary to the Board of Control, and from 1841-45 was Secretary to the Admiralty. In 1845-46, and again 1852-55, he was Secretary for War, and as such was held responsible for the mismanagement of the campaign in the Crimea. From 1859-61 he was again Secretary for War, when he carried through some important administrative reforms. He died Aug. 2, 1861, having just been made a baron. Two of his sons became earls of Pembroke, and his own barony is now merged in that title.

Herb Paris Herb of the lily family (*Paris quadrifolia*). It is indigenous to Europe and Asia, and is found in woodlands in Great Britain. Its round smooth stem bears a whorl of four acutely oval leaves, surmounted by a single malodorous flower with green sepals and awl-shaped yellow petals, forming a black berry. It grows to a height of 12 ft.

Herb Robert Annual herb of the geranium order (*geranium robertianum*). It is indigenous to temperate and Arctic Europe and Asia, and N. Africa, and is abundant on British waysides. Sometimes called stinking crane's bill, it is hairy, often reddish, with much-divided leaves and dark-streaked light red flowers. The name comes traditionally from Robert, Duke of Normandy.

Herculaneum Ancient town of Italy. Situated on the coast between Naples and Pompeii beneath Vesuvius, it was damaged by earthquake, A.D. 63, and buried under mud and lava during the eruption which also destroyed Pompeii in 79. Subsequent eruptions deepened the deposit beneath which it lies. Discovered in 1719, it was examined in the 18th and 19th

centuries. Excavations recovered a theatre, villa and other buildings, with a wealth of bronzes, portrait busts, wall paintings, mosaics, instruments, papyrus rolls and other objects. These are mostly in Naples Museum. The excavations were renewed in 1920.

Hercules Latinised name of the mythical hero, Heracles, the chief national hero of Greece. Son of Zeus and Alcmene, he displayed prowess from his cradle. After he had slain his own children in mad fury, the Delphian oracle bade him serve King Eurystheus of Tiryns for twelve years, during which he performed his famous twelve labours. He is frequently represented in classical art with a club and a lion skin mantle. Hercules is sometimes identified, as a sun god, with the Babylonian Baal, whose worship the Phoenicians introduced into Greece.

Hercules Pillars of. Ancient name for (Ceuta), the rocky headlands guarding the Mediterranean outlet into the Atlantic. Legend is uncertain whether Hercules joined them or tore them asunder.

Herd Group or collection of anything, especially of cattle, sheep and pigs. A herd-book is a book in which the record of pedigree stock is kept for the use of breeders and others. Societies of breeders issue such books, usually every year.

Herder Johann Gottfried Von. German writer. He was born Aug. 25, 1744, and was educated at the University of Königsberg. He became a teacher at Jtzen and then a Lutheran minister at Bückeburg and later at Weimar. At Weimar he remained until his death, Dec. 18, 1803.

Influenced by Kant and Goethe, Herder first made a reputation as a critic, but subsequently turned to philosophy. In his greatest work, *Ideas on the History of Mankind*, he puts forward, in a tentative manner, the theory of evolution. He was a collector of folk songs, and also wrote poems.

Hereditament Really a piece of real property that can pass to an heir. It is now rarely used except by lawyers when property is sold.

Heredity The organic relation between one generation and another, especially between parents and children. It deals with the transmission of qualities from parents and remoter ancestors to their progeny.

Scientists have long accepted the main facts of heredity, and all breeders of animals make use of their knowledge of heredity in mating one with another. Their object is to transmit those qualities which are most useful, whether it is the milking qualities of a cow, the speed qualities of a racehorse, the fighting qualities of a gamecock, or the flesh producing qualities of a pig.

In man the transmission of hereditary qualities cannot be arranged in such simple fashion for obvious reasons. These, however, are transmitted and eugenicists and others have given a good deal of time to studying the value of such transmission. Although it is generally admitted that heredity is of great importance in the development of mental and physical characteristics, it is equally certain that these can be modified by the counteracting influence of environment. See EUGENICS.

Hereford City, market and county town of Herefordshire. It stands on the Wye, 144 m. from London,

and is reached by the G.W. Rly. The principal building is the cathedral, a magnificent example of Gothic architecture at various dates. It has a library of chained books, which was re-opened after renovation in 1931. Other buildings are Coningsby Hospital and St. Ethelbert's Hospital, the churches of All Saints and St. Peter, the college of the vicars choral and the episcopal palace. Every three years a musical festival is held here; it is given by the choirs of Hereford, Gloucester and Worcester. These counties also hold an agricultural show, which comes to Hereford every third year. There is a racecourse. The industries include the making of beer and cider and the tanneries are important.

Hereford, owing to its position, was an important place in the Middle Ages, when it became a prosperous centre of the woollen industry. Its bishopric dates from 672. Pop. (1931) 24,159.

The important earldom of Hereford was long held by the great family of Bohun. Before their day it was held by several Norman barons, one of whom left a daughter who married Humphrey Bohun. Their son was made earl in 1199, and the title remained in the family until 1373. In 1397 Henry, afterwards Henry IV., was made Duke of Hereford.

The existing title of Viscount Hereford dates from 1550, when it was given to Walter Devereux. For a time it was held by the earls of Essex, but later again became an independent title and is still held by the Devereux family. It ranks as the premier viscounty in the English peerage.

Herefordshire County of England. In the west of the country, it is on the borders of Wales. Its area is 812 sq. m. Hereford is the county town; other places are Leominster, Ross and Ledbury. The Wye flows through it and the scenery is very beautiful. Other rivers are the Lugg, Terne, Arrow and Frome. In the east are the Malvern Hills; in the south the Black Mountains. The county is almost entirely given up to agriculture, and is specially famous for its cider and its cattle. Sheep are reared and hops are grown. Its historic interest centres round the border castles, now mainly ruins, such as those at Goodrich and Wigmore. Pop. (1931) 111,755.

The **Herefordshire Regiment** was founded in 1907 as a territorial or volunteer unit only. It served in the Great War, and was afterwards incorporated in the Shropshire Light Infantry.

Heresy Opinion or doctrine at variance with recognised standards, specifically of theological belief and procedure. It is distinct from schism. Heresy has appeared in Christendom since New Testament times ('Tit. iii.). The first heresies were largely of Gnostic origin, e.g., Arian, Manichean and Pelagian, and were vigorously contested in early church councils. Later the Albigenses, Lollards and others were treated as heretics, and many persons were put to death for holding heretical opinions. Nowadays heresy is a purely ecclesiastical offence. Any clergyman or minister proved guilty of heresy is deprived of his office. Notable heresy hunts were those of Bishop Colenso in S. Africa, and of W. Robertson Smith in Scotland.

Hereward English soldier called the Wake. He was a holder of land in Lincolnshire in 1066. He rebelled against the Normans and made his head-

quarters in the Isle of Ely, where he gathered a number of followers. In 1071 William I. broke up his camp and ended the rising. Nothing more is known of Hereward. Charles Kingsley wrote a novel on his exploits.

Hergesheimer Joseph. American novelist. He was born in Philadelphia, Feb. 15, 1880, and for a time studied art. In 1915 he made a name with his novel, *Mountain Blood*, and rose to the front rank with *The Three Black Pennys*, 1917; *The Bright Shauls*, 1922; *The Presbyterian Child*, 1923, and *Tampico*, 1926.

Heriot George. Scottish goldsmith. Born in Edinburgh in June, 1563, he served James I. and his wife, presumably by buying jewels for them. He died in 1624. He figures as "Jingling Geordie" in *The Fortunes of Nigel*.

Heriot's name is commemorated in Edinburgh by Heriot's Hospital, a school erected in the 17th century, and the Heriot Watt College, a modern technical college. The estates left by Heriot are controlled by the Heriot Trust, and the income is used to finance the college and for bursaries.

Herkomer Sir Hubert. English painter. Born in Bavaria, May 26, 1849, he was brought to England by his father, a wood carver, and educated at Southampton. About 1869 he made a name with some sketches and later with his paintings, "The Last Muster" and "Found." In 1879 he was elected A.R.A. and in 1890 R.A.; in 1907 he was knighted. Herkomer is best known for the school of art he founded and conducted at Bushey. He was Slade Professor of Fine Art at Oxford, 1885-91, and died at Bushey, March 31, 1914.

Herm Small island of the Channel Islands. After the Great War it was bought by an English company for development as a holiday resort, and can be visited in the summer from Guernsey, 3 m. distant. Pop. 33.

Hermaphrodite Individual capable of producing both spermatozoa and ova, and therefore possessing the function of both sexes. The condition is normal in plants whose flowers contain stamens and pistils, although self-fertilization is less usual than cross-fertilization. Some invertebrates are normally self-fertilizing, e.g., the oyster and the clam. Earthworms are both hermaphroditic and copulative, two individuals simultaneously impregnating each other.

Hermes In Greek mythology one of the gods, a son of Zeus and the counterpart of the Latin Mercury. His early exploits included the theft of the girdle of Aphrodite and the trident of Poseidon. He became the messenger of the gods, and conducted the souls of the dead to the lower world. He was the god of eloquence and of luck, the patron of travellers and traders.

Hermitage Cell or home of a hermit. One survives at Warkworth and another on an island in Derwentwater. **Hermitage Castle**, now a ruin in Roxburghshire, was a famous border stronghold, held first by the Comyns and later by the Douglases.

A palace at Balrouth is called the **Hermitage**, but more famous is the one at Leningrad, built by Catherine II. in 1765 and long a residence of the tsars. In the 19th century it was converted into a museum and art gallery. A famous French wine called **Hermitage** is produced at Valence, on the Rhône.

Hermon Mountain of Syria. At the end of the Anti-Lebanon range, 9,400 ft. high, it has remains of a temple built in honour of Baal. Its modern name is Jebel-*et-Sheikh*.

Herne Bay Seaside resort and urban district of Kent, 7 m. from Canterbury and 82 m. from London, on the S. Rly. Pop. (1931), 11,244. **Herne** is a village, 1 m. inland.

Herne Hill District of London, about 5 m. from the City, on the S. Rly. Brockwell Park is in the district, which also has a running track.

Hernia (or **Rupture**). Escape from the abdominal cavity of some part of the intestine or its appendages, especially in the groin region, often the result of strain in predisposed persons. In children, and adults who wish to live an active life, operation is generally advisable. In elderly people the wearing of a truss to reduce the hernia is the more common treatment, though in special cases an operation becomes absolutely essential.

Hero In classical legend a superior being or demigod, intermediate between gods and men. They appeared in the Heroic Age, an era preceding the Historic Age, e.g., Hercules, Theseus. The name includes also the principal personages in national epics, e.g., Achilles, Hector, Ulysses and Aeneas.

A **Hero-Fund**, founded by Andrew Carnegie, exists to assist cases where loss of life or earning power has resulted from acts of heroism in saving human life under peace conditions in the British Isles.

Hero Figure in Greek legend, a priestess of Aphrodite at Sestos on the Hellespont. See **LEANDER**.

Herod Name borne by princes of a Judaean dynasty of Idumaean origin. **Herod the Great**, born 71 B.C., was for a time ruler of Galilee. On his father's death he was recognised by the Romans as King of the Jews in 40 B.C., and he was ruling when Jesus was born. He founded cities and rebuilt the temple at Jerusalem. The New Testament tells how he ordered the Massacre of the Innocents, and of his dreadful death in 4 B.C. (Matt. ii.).

Other Herods were **Herod the Tetrarch**, who beheaded John the Baptist (Matt. iv.); **Herod Agrippa I.**, who executed S. James (Acts xii.), and **Herod Agrippa II.**, before whom S. Paul appeared (Acts xxiii.).

Herodians Political party, not a religious sect, which actively supported Herod the Great's Idumaean dynasty (Matt. xxii., Mark iii.). They shared the antagonism of the Pharisees to Christ, and were condemned by Him.

Herodotus Greek historian, born at Haliacarpus in Asia Minor about 484 B.C. He travelled extensively, and died probably in 424.

The history of Herodotus is in nine books, written in the Ionic dialect. It deals with the early history of Persia, Lydia and Egypt, but its main theme is the struggle between the Greeks and the Persians. It ends in 478. From it we gain much of our knowledge about Marathon, Thermopylae and Salamis.

Heroin Drug obtained from morphine by the employment of acetic acid. It is used in medicine as a sedative and narcotic, but can be bought or sold only by licence.

Heron Large subfamily of birds allied to the bitterns. The common grey

species, *Ardea cinerea*, with long legs and neck, great wings and pointed bill, is the only one now breeding in Britain. It is about 3 ft. long and its large, flat, moss-lined nests shelter pale-green eggs. Occasional visitants to Britain are the great and little white heron, or egrets, and the night heron, *nycticorax*.

Hérons live together in heronries, and there are still a number of these in England, e.g., at Parham, in Sussex.

Herpes Inflammation of the skin. Vesicles are formed which later dry into a crust. Two forms are common, around the nose and lips, and on the body (shingles). The former accompanies or follows certain fevers, the latter chiefly affects elderly people.

Herrick Robert. English poet. Born in London in 1591, he was the son of a goldsmith, and apprenticed to that trade, but went to Cambridge and was ordained. In 1629 he became Vicar of Dean Prior in Devonshire, and there he remained until the Puritans turned him out in 1647. After the Restoration he went back to his Devonshire living and there he died, Oct. 15, 1674. He is buried at Dean Prior.

Herrick wrote many poems, including the collections called *Noble Numbers* and *The Hesperides*. Among them are the lyrics, perfect of their kind, that have made his fame, such as "Bid me to live," "Cherry Ripe," and "Gather ye Rosebuds."

Herries Lord. Scottish title. First held by Herbert Herries in 1490, it passed by marriage to the Maxwell family, whose descendants, earls of Nithsdale, forfeited their titles in 1715. In 1853 it was successfully claimed by William Constable Maxwell, whose granddaughter, Baroness Herries, married the Duke of Norfolk.

Herring Fish allied to the pilchard. It is abundant in northern waters, especially in the North Sea. The fish, which is extraordinarily prolific, spawns twice a year, summer and autumn. The eggs are laid on weeds, etc., in comparatively shallow water, and hatch out in two or three weeks. The fish takes two or three years to become mature.

Herrings move in shoals near the surface of the water, and are caught mainly in drift nets. An enormous quantity is taken into the ports on the E. coast of Great Britain. Some of these are sold fresh, but the greater part are salted and dried to become blousters, or smoked to become red herrings or kippers, giving rise to a large industry, especially in Yarmouth, where, during the season, thousands of women are employed. The annual catch of herrings in Great Britain is worth about £4,000,000, represented by over 200,000 tons of fish. Norway has also valuable herring fisheries.

Herring Bone Phrase used in architecture. It describes the design of courses of stone wherein obliqueness to the right in one alternates with obliqueness to the left in the other, so that the formation of a herring's backbone is imitated. There is also a herring-bone stitch in needlework.

Herrings Battle of the. Fight between the English and the French, Feb. 12, 1429. The English were trying to take Orleans, and a little force set out to bring provisions, chiefly herrings for eating in Lent. The French and their Scottish allies met them at Rouvray and a battle took place in which the English were victorious.

Herriot **Edouard**. French statesman. Born July 5, 1872, at Troyes, he became a brilliant classical scholar. In 1897 he wrote *Philon le Juif*, which was crowned by the Academy, and later *Madame Recamier et Ses Amis* and other books showing scholarship of a high order.

In 1912 Herriot entered public life as a member of the Senate. He was later chosen leader of the Radical party; in 1924 he became premier, but events compelled his resignation in 1925. He again became premier in May, 1932, and in July signed the Lausanne agreement for France.

Herschel **Sir Frederick William**. English astronomer. Born in Hanover, Nov. 15, 1738, he went to England in 1757 and after much hard work on making and improving telescopes, he discovered the planet Uranus. His other discoveries included the planet's satellites, many double stars, and numerous nebulae. In 1782 he was made astronomer to George III, and in 1816 a knight. He died at Slough, where he had carried on his work, Aug. 25, 1822.

Herschel's sister, **Carolina Lucretia Herschel** (1750-1818), did valuable work as an astronomer, and like her brother, compiled a star catalogue.

Herschel left an only son, **John Frederick William Herschel**, born March 7, 1792. At Cambridge he was senior wrangler and he there gave his time to studying astronomy. He mapped out all the stars in the Northern Hemisphere, and founded an observatory at the Cape of Good Hope to do the same for the Southern Hemisphere. In 1838 he was made a baronet, and he was president of the Royal Society. From 1850-55 he was master of the mint, and he died May 12, 1871. His writings include *The Outline of Astronomy*.

Herschell **Baron**. English lawyer. Born Nov. 2, 1837, Farrer Herschell, the son of a Nonconformist minister, became a Q.C. in 1874, and was elected M.P. for Durham. From 1880-85 he was Solicitor-General in the Liberal ministry, and in 1886 Lord Chancellor and a peer. He died in Washington, March 1, 1899, when engaged on the arbitration about the boundaries of Venezuela.

Hertford Borough and market town of Hertfordshire. It stands on the Lea, 24 m. from London. Its industries include brewing, printing and milling, and there is an agricultural trade. Pop. (1931) 11,376.

Hertford **Marquess of**. Title borne by the family of Seymour. In 1537, Edward Seymour, uncle of King Edward VI., was made Earl of Hertford. Later he became Duke of Somerset, and his grandson, William Seymour, was made Marquess of Hertford and Duke of Somerset, but the marquessate became extinct when the 4th duke died in 1675. In 1750, Francis Seymour, a descendant of the first Duke of Somerset, was made Earl of Hertford and in 1793, Marquess of Hertford. Francis Charles, the 3rd marquess (1777-1842), inherited much wealth from his mother, and was known for his gallantries and his extravagances. He figures as the Marquess of Steyne in *Vanity Fair*. The eldest son of the marquess is called the Earl of Yarmouth.

Hertford House House in London containing the Wallace Collection. It is in Manchester Square

and was built late in the 18th century. The magnificent collection of pictures and works of art which it contained was left by the 4th Marquess of Hertford to Sir Richard Wallace, who added to it and bequeathed it to the nation. The Government then bought Hertford House, and it was opened to the public in 1900.

Hertfordshire County of England. One of the home counties, it covers 632 sq. m. and lies between the shires of Cambridge, Middlesex, Bedford, Buckingham and Essex. It is billy in the west, where are spurs of the Chilterns. The chief rivers are the Lea and the Colne. The Grand Union canal and the New River pass through the county and the southern part is in the area of Greater London. Hertford is the county town. Other places are St. Albans, Letchworth and Watford. Agriculture and market gardening are the chief industries. Pop. (1931) 401,159.

The Hertfordshire Regiment was raised as a territorial unit in 1907. It sent battalions to the Great War, and is now incorporated with the Bedfordshire Regiment.

Hertz **Heinrich Rudolf**. German scientist. Born in Hamburg, Feb. 22, 1857. Following in the wake of Clerk Maxwell, he studied the experimental production of electromagnetic (or "Hertzian") waves. His discoveries were the first steps towards wireless communication. He died Jan. 1, 1894.

Hertzog **James Barry Munnik**. South African politician. Born April 3, 1866, of Boer parents. In the war of 1899-1902 he held an important command, and after the annexation of the republic appeared as a champion of the Boer cause. In 1915 he was elected leader of the Nationalist party, and as such repeatedly claimed independence for South Africa. In 1924 he became premier and was still in office in 1932.

Hervey Name of an English family represented by the Marquess of Bristol. Its members were specially prominent in the 18th century, and its most famous member was John, Lord Hervey (1696-1743), son of the Earl of Bristol, who wrote *Memoirs of the Court of George II*.

Herzegovina District of Yugoslavia. It covers 3560 sq. m., and Mostar is the chief town. For some centuries it was a Turkish possession, but in 1878 it was put under the protection of Austria. In 1908 it was annexed, along with Bosnia, by that empire, and in 1918 it was included in the new kingdom of Yugoslavia.

Hesione In Greek legend, daughter of Laomedon, King of Troy. Poseidon, having been employed to build the city walls by Laomedon, was refused payment. To avenge himself he sent a sea monster which could only be restrained by the sacrifice of a king's daughter, and Hesione was selected for the sacrifice. Hercules rescued her, but Laomedon refusing him the promised reward, Hercules slew him and gave Hesione as a bride to Telamon.

Hesperides In Greek mythology, maidens who guarded the golden apples which Earth gave Hera when she wedded Zeus. Usually numbering three, Aegle, Erytheia and Hesperus, their gardens bordered the ocean in the farthest west, and are sometimes located near Mt. Atlas. One of the twelve labours of Hercules was to procure the fruits after slaying their guardian, a dragon.

Hesse State of Germany, one of the members of the republic. In the west of the country, it covers 2968 sq. m., and is partly an agricultural region, cereals and vines being grown, while in some districts coal and iron are mined. It is governed by a small cabinet responsible to a diet or landtag. Pop. 1,347,300.

Hessian Anything belonging to Hesse. A cloth made of jute is called Hessian.

The **Hessian fly** is an insect that, in its larva stage, is harmful to wheat, barley, rye, and other cereals.

Hessle Market town and urban district of Yorkshire (E.R.). It is on the Humber, 4 m. from Hull and 102 m. from London. It has industries similar to those of Hull. Pop. (1931), 6430.

Heston District of Middlesex. It is 12 m. from London, on the District Rly. It is a flying station with an air park. With Isleworth it forms an urban district. Pop. (1931), 75,416.

Heterodyne System of wireless reception. In it the incoming oscillations are combined with locally generated oscillations of slightly different frequency giving rise to a "beat" effect which is audible after rectification.

Hetton Urban district of Durham, 256 m. from London and 7 m. from Sunderland. Coal mining is the chief industry. Pop. (1931), 17,672.

Hever Village of Kent, on the Eden, near Edenbridge, 27 m. from London. Its castle, where Anne Boleyn lived, was restored by the 1st Viscount Astor. Pop. 700.

Hewart Lord, English lawyer. Gordon Hewart was born at Bury, Jan. 7, 1870, and was called to the Bar in 1902. In 1913 he was elected M.P. for Leicester as a Liberal; in 1916 he became Solicitor-General, and in 1919 Attorney-General in the coalition ministry. In 1922 he was made Lord Chief Justice and a baron. His book *The New Despotism* attracted a good deal of attention when published in 1929.

Hexameter Name given to a verse of six feet. In English poetry there are two kinds, the iambic, with the last syllable accented, and the trochaic, with the accent on the first syllable.

Hexateuch Greek term meaning six books, and coined by modern Bible scholars for the first six books of the Old Testament. It is analogous to Pentateuch, or five books.

Hexham Market town and urban district of Northumberland, famous for its abbey church, once belonging to an Augustinian priory. It is a magnificent edifice; the nave is modern. The industries are mainly connected with the agricultural interests of the district, in which there are also coal mines. Pop. (1931), 8888.

Outside Hexham, on May 15, 1464, a battle was fought between the Yorkists and the Lancastrians, in which the Lancastrians were defeated.

Heysham Seaport and watering place of Lancashire, on the south side of Morecambe Bay, 5 m. from Lancaster. From here steamers go regularly to Belfast, Douglas, Londonderry and elsewhere, and for these the L.M.S. Rly. Co. has built docks and enlarged the harbour. Pop. 3350.

Heywood Borough and market town of Lancashire, 9 m. from Manchester. Cotton, chemicals and machinery are made here. Pop. (1931), 25,967.

Heywood Thomas, English dramatist. A Lincolnshire man, he was born about 1570 and became an actor. His plays include *The Four Prentices of London*, *A Woman Killed with Kindness*, *The English Traveller* and *The Captives, or The Lost Recovered*. He also wrote poems and pageants, and was responsible for a *Life of Queen Elizabeth*. He died in 1641.

Hezekiah King of Judah, known for his activities in two directions. He put down idolatry and restored the worship of Jehovah, destroying the brazen serpent and repairing the temple at Jerusalem. He refused to pay tribute to Sennacherib, King of Assyria, who invaded his land twice, and whose army was utterly destroyed by a pestilence on the second occasion. Hezekiah reigned from 726 to 697 B.C. and his story is told in 2 Kings xviii.-xxvi. and 2 Chron. xxix.-xxxii. The prophet Isaiah also refers to him.

Hiawatha Name of a Red Indian chief of the Ojibwaga tribe. He lived about 1500 A.D. and reconciled warring tribes with his League of Six Nations. The name is also used for a miraculous legendary being who taught the arts of peace to the Red Indians, and his exploits are narrated in Longfellow's poem, *Hiawatha*.

Hibbert Trust Charitable foundation. In 1847 Robert Hibbert (1770-1849) gave money to found scholarships and fellowships for the study of religion, free from all sectarian and denominational considerations. This became the Hibbert Trust, which provides lectures, and since 1902 has supported *The Hibbert Journal*, a monthly review.

Hibernation Dormant condition or hibernation of certain animals such as bears, dormice, and insects. A similar resting stage occurs among tropical forms during the dry season, and in Britain a summer sleep is met with in certain reptiles, amphibians, and worms. Hibernation is usually due to lack of food, and during this period the temperature of the body falls, the activity of the organs lessens, respiration is feeble, and the vitality is at a minimum.

Hibernia Latin name for Ireland, sometimes used to-day. See IRELAND.

Hibiscus Herbaceous plant of the genus *Malvaceae* (mallows). They consist of about 200 varieties of tropical and sub-tropical herbs and shrubs, and are prized as ornamental plants for their large and brilliantly-coloured blossoms. Some are cultivated for their mucilage.

Hiccough Involuntary spasmodic contractions of the diaphragm muscle, common in children, and very often the result of eating or drinking too quickly. Give a pinch of bicarbonate of soda in water, or 1 teaspoonful of milk of magnesia in water, sipped slowly. In the case of a baby, give 1 teaspoonful of dill-water and hold him firmly up against the shoulder while patting him on the back.

Hickory Genus of N. American trees of the walnut order (*Carya*). Cultivated for their elastic timber and edible nuts, they include the shellbark, yielding the best nuts, the pecan, the white-heart or mockernut, and the pig-nut. The timber serves for



The Book of Ani

1. I open the door in heaven. I take my throne. I open the way for the births which take place on this day. I am the child who traverses the road of Yesterday. I am To-day 2. for untold nations and peoples. I am he who protecteth you for millions of years. Whether ye be denizens of heaven, or of the earth, of the South, or of the 3. North, or of the East, or of the West, the fear of me is in your bodies. I am he whose being hath been wrought in his eye. I am not forgotten again. My moment is in your bodies.

Symbolic of an Age that is Gone: Lines of Priestly writing or Hieroglyphics from the Ancient Egyptian 'Book of the Dead' (Papyrus of Ani) 18th Dynasty, circa 1450 B.C.

[Translated by Professor A. E. Wallis Budge, M.A., Litt.D.]

axletrees, tool-handles, barrel-hoops and golf-clubs, and makes compact charcoal. The trees may grow to a height of 90 ft.

Hicks **Edward Seymour**, English actor. Born at St. Helier, Jan. 31, 1871, he first appeared on the stage in 1887, and in 1905 opened his own theatre, The Aldwych. Hicks has written many plays including *The Man in Dress Clothes* and *The Beauty of Bath*, also several books, among them *Twenty-four Years of an Actor's Life*; *If I were your Father*, *Chestnuts Re-roasted* and *Ilulo Australians*. He married, in 1902, the actress, Ellaline Terriss.

Hidalgo In Spain, a title used by the lesser nobility. It seldom denotes, nowadays, more than gentle birth and gives no official status.

Hierarchy Term denoting a body organised in ranks and orders for ruling over sacred things. The Jewish hierarchy comprised high priest, priests and Levites. The Council of Trent anathematised all who reject the divinely appointed hierarchy of bishops, priests and ministers. The celestial hierarchy comprises "angels, archangels and all the company of heaven."

Hiero Name of two rulers, or tyrants, of Syracuse. **Hiero I.** reigned from 478 to 467 B.C. His fleet won a victory over the Etruscans in 474, but he is better known for the hospitality he extended to Aeschylus, Pindar and other scholars.

Hiero II. was a soldier who lived from 270 to 216 B.C. He was made King of Syracuse and took part in the struggle between Rome and Carthage, first as the ally of Carthage and then of Rome.

Hieroglyph Pictorial character employed in Egyptian and other records, including those of the Hittites and the Mayas. This picture writing system began with pictographs outlining actual objects, e.g., an eagle, but always with conventional meanings, which might become ideographic if interpreted literally, e.g., a circle for the sun, or symbolically, e.g., a musical instrument for gladness.

At first carved on stone or painted on wood this hieroglyphic or priestly writing was used for other materials, e.g., papyrus. Egyptian writing passed by the 4th century A.D. into a Coptic alphabet.

Higgins **Edward John**, English preacher. Born at Highbridge and educated at Bridgewater, he joined the Salvation Army in 1882. He was chosen, in 1929, general in succession to W. Bramwell Booth.

Higham Ferrers Borough of Northamptonshire, on the Nen. 62 m. from London and 5 m. from Wellingborough. The staple industry is the making of boots and shoes. Pop. (1931), 2928.

High Blood Pressure Pressure of the blood unhealthily in excess of the normal (about 120 mm. of mercury). It is most often due to the hardening of the arteries which is apt to occur with advancing years, and the best prevention is healthy living during adult life.

People with high blood pressure should adopt a simple and moderate diet, avoiding rich foods, and alcohol except in strict moderation; plenty of water should be drunk between meals, moderate exercise taken and worry must be strictly avoided. See ARTERIO SCLEROSIS.

Highbridge Urban district of Somerset. It is 144 m. from London and 27 m. from Bristol, and is on the little River Brue. The G.W. Rly. has works here. Pop. (1931), 2584.

Highbury District of London, about 4 m. N. of the city, in the borough of Islington. Highbury Park is a pleasant residential district. Highbury Fields is an open space. At Highbury is the ground of the Arsenal Football Club.

High Commissioner Name given to one who represents his country in another country. From time to time men are sent out as high commissioners, an instance being Sir Alfred Milner who went to South Africa as high commissioner in 1897. The representatives of Canada, Australia, New Zealand, India, South Africa and the Irish Free State in London are Lord High Commissioners.

A high commissioner is appointed by the king each year to represent him at the annual Assembly of the Church of Scotland.

The Court of High Commission was organised in England in the reign of Elizabeth to see that the services of the Church of England were conducted according to the Act of Uniformity. It was abolished in 1641.

High Court of Justice English court of law. In 1873, when the judicial system was reformed, the high court was established. It is in three divisions, chancery; king's bench; probate, divorce, and admiralty. Each division has its quota of judges who are appointed on the advice of the Lord Chancellor. They are knighted and receive a salary of £4000 a year and a pension. The judges sit in London, at the law courts in the Strand, except those who are on circuit. Litigants can appeal against decisions of the high court to the court of appeal, which forms the higher branch of the supreme court of judicature.

Higher Criticism Term used for the criticism of the books of the Bible. It is directed rather against their historical accuracy than against their literary qualities or moral teaching, and so called to distinguish it from the lower criticism of the actual text.

Highgate District of London to the N. of the city. The S. part is divided between the boroughs of St. Pancras and Islington, with the N. part in the county of Middlesex. Highgate Hill is a landmark, whilst Highgate Woods is an open space of 69 acres. Whittington's Stone is here. Highgate School is a large public school with accommodation for nearly 700 boys.

Highlands Any elevated land, but especially that part of Scotland that lies N. of the Grampians, or N. of a line drawn from Ben Lomond to Aberdeen. It includes the counties of Argyll, Inverness, Ross and Cromarty, Sutherland, Caithness, Banff, Nairn, and Aberdeen, although the coastlands of the last three shires are usually excluded. It is mountainous, the scenery in parts being of extraordinary beauty, especially where lochs lie amidst the mountains. With a poor soil, the Highlands are thinly peopled and much of the land is devoted to deer forests and grouse moors. Inverness is usually regarded as the capital of the Highlands.

The Highlands have their own language and customs, and form a distinct part of Scotland, although this distinction is now less marked

than it was before 1745, when the clan system was dominant. The language is Gaelic. The Highland dress consists of kilt, plaid and bonnet. Highland sports are seen at the various Highland games held every year in different centres. The district has its own music, in which the bagpipes play an important part.

The Highland regiments of the British Army are those that wear the Highland dress. They are the Black Watch, Cameron, Seaforth, Gordon, and Argyll and Sutherland Highlanders. The Highland Light Infantry does not wear the kilt and is not, strictly speaking, a Highland regiment.

The Highlands have a famous breed of cattle, and their cattle shows are notable.

The Highland Rly. is now part of the L.M.S. system.

High Priest Chief priest, specifically in the ancient Jewish church. Josephus enumerates 83, from Aaron to Phannias, A.D. 67. He kept the anointing oil, wore vestments of special magnificence, and entered alone, in white linen, into the Holy of Holies on the Day of Atonement.

High Sheriff Name used to-day for the sheriff of a county in England and Wales. He is appointed for a year from among the landowners in the county, and discharges duties connected with the administration of justice. For the routine work he appoints a lawyer as under-sheriff. The sheriffs are named, or picked, by the Chancellor of the Exchequer; three names from each county are submitted to him, but by custom he picks the first. For Lancaster and Cornwall, they are chosen by the King as Duke of Lancaster, and the Prince of Wales as Duke of Cornwall.

High Tor Hill of Derbyshire. It overlooks the Derwent at Matlock, and is 400 ft. high. In it is a grotto, and opposite are the Heights of Abraham.

High Water Highest point to which a tide comes on the sea coast. It is usually every 12 hours, 25 min., and is therefore 50 min. later each day. There is similarly a high tide in tidal rivers.

Highway Main road. The care of the highways is in the hands of the various councils through whose territory they pass, their work being supervised to some extent by the Ministry of Transport. The Highway Code is the name given to the regulations for using the roads prepared under the important Road Traffic Act of 1930. See ROAD.

Highwayman Robber on the public way. Highwaymen flourished in the 17th and 18th centuries, and in the 19th until the building of railway lines. They were usually mounted and masked, and accosted travellers passing over heaths or any desolate area in the neighbourhood of London or other large centres. Hounslow Heath and Blackheath were noted haunts of highwaymen. Charles Duval (1643-70) excelled in daring and gallantry. John Newson (1639-84), and Dick Turpin (1706-39) were heroes of a ride to York, probably apocryphal.

High Willhays Hill of Devonshire, the highest point on Dartmoor. It attains 2039 ft., and is reached from Okehampton, 4 m. to the north.

High Wycombe Borough and market town of Buckinghamshire, also known as Chipping Wycombe, 27 m. from London. The making

of furniture, especially chairs, is the chief industry, and there is an agricultural trade. Pop. 22,000.

Near is the beautiful village of West Wycombe, which it has been proposed to preserve to show what an English village was like.

Hilary Saint and bishop. Born about the year 300, he became a Christian, and about 350 was appointed Bishop of Poitiers. He opposed the Arians and was banished to Phrygia by the Emperor Constantine, whence he governed his diocese as before. Later Hilary went to Constantinople, but again he attacked the Arians, and was sent back to Poitiers where he died in 368. He wrote various theological works, and his feast occurs on Jan. 13.

Hilary is a term at the Inns of Court and the University of Oxford. It begins about Jan. 13, and lasts for three or four weeks.

Hilda English saint and abbess. Born in 614, she was a relation of Edwin, King of Northumbria. She was baptized and became a nun. In 649 she was appointed abbess of a house at Hartlepool, and later she founded one at Whitby which became very famous and where the abbess received Gædmon. She died at Whitby. Nov. 17, 680.

Hill Sir Rowland English reformer. Born at Kidderminster, Dec. 3, 1795, he is known for his services to postal reform, as it was mainly through his efforts that the penny post was introduced in 1840. He was knighted in 1860, and died Aug. 27, 1879.

Another Rowland Hill was a famous preacher, who, in 1783, built the Surrey Chapel, now a boxing centre, in the Blackfriars Rd., London.

Hill Viscount English soldier. Born in Shropshire, Aug. 11, 1772, Rowland Hill held a high command in the Peninsular War, and also at Waterloo. From 1828 to 1842 he was Commander-in-Chief. In 1814 he was made a baron, and in 1842 a viscount. He died Dec. 10, 1842.

Hill Fort Stronghold or fortified place on a natural elevation. Many examples exist in Great Britain. English and Irish are usually earthenworks, Welsh and Scottish are usually of stone. Many were utilised in Roman, Saxon and Norman times. Some occupy promontories or mountain crags; natural defences were supplemented by artificial ramparts, sometimes concentric, and protected by ditches. Maiden Castle near Dorchester is a notable hill fort.

Hillsborough Town of Co. Down, Northern Ireland, 12 m. from Belfast. Hillsborough Castle is the seat of the Marquess of Downshire, the head of the family of Hill. Pop. 500.

Hilton Harold Horsfall. English golfer. Born Jan. 12, 1869, in 1892 he won the English open championship, a feat he repeated in 1897. He was amateur champion 1900, 1901, 1911 and 1913, and he also won the Irish championship on four occasions. In 1911 he won the Amateur Championship of the United States. Since 1913 Hilton has been editor of *Golf Illustrated*.

Hilversum Town and watering place of the Netherlands. It is on the coast, 18 m. from Amsterdam, and is a railway junction. There are various attractions for visitors, including a kuraal. There is also a powerful broadcasting station (296.1 M.; 20 (7) kW). Pop. 49,200.

Himalaya Range of mountains in Asia containing the highest peaks

in the world. They are between India and Tibet and stretch for nearly 1600 m. from Afghanistan to Burma. Their width is about 200 m. The system consists of several ranges. First are the foothills, perhaps 3000 ft. high; then comes the outer Himalayas, perhaps 9000 ft. high, and finally the Himalayas proper, with an average height of 18,000 or 20,000 ft. There are passes through the mountains, but these are difficult, as they are all above the snowline, which is 15,000 ft.

The highest peak is Everest; others are Kanchenjunga, Dhaulagiri and Kamet. Most of the attempts to climb these peaks have failed, but in 1931 Kamet was conquered. The Ganges, Indus, Brahmaputra, Sutlej and other rivers rise in the range. Sometimes the Karakoram range is included in the Himalayan system. The word Himalaya means, in Sanscrit, "the abode of snow."

Hinchingbrooke Village of Huntingdonshire. It adjoins Huntingdon, and here is Hinchingbrooke House, the seat of the Earl of Sandwich. At one time the residence of Oliver Cromwell, it is a fine house dating from the 16th century.

Hinchingbrooke is also the name of an island off the coast of Queensland.

Hinckley Urban district and market town of Leicestershire, 14 m. from Leicester, on the L.M.S. Rly. The chief industries are the manufacture of hosiery, boots and shoes. Pop. (1931) 16,030.

Hindenburg Town of Silesia, Germany, formerly called Zabrze. It is 66 m. from Oppeln on the Silesian coalfield and is a railway junction as well as a manufacturing centre for machinery and chemicals. Pop. 106,900.

Hindenburg Paul von. German soldier. He was born at Posen, Oct. 1, 1847, and in 1865 entered the Prussian Army as an officer. He served in the war against Austria in 1866, and in the war of 1870-71 against France. During the years of peace he rose steadily in rank until he became a general at the head of an army corps. In 1911 he retired, but in 1914 he was recalled to active service and given command of the German forces in E. Prussia. He won the Battle of Tannenberg, and drove the Russians out of Germany. At this time he became the idol of the German people, a status he never wholly lost. He then led an army into Poland, where, mingled with some failures, he won some conspicuous successes, including the victory at Kovno and the capture of Warsaw. By now a field marshal, he was promoted in Aug., 1916, to succeed Falkenhayn as head of all the German Armies, with Ludendorff as his Chief of Staff. He remained in command throughout 1917 and 1918, and after the Armistice until 1919, when he retired. In 1925, the old marshal was elected President of the Republic, and re-elected on April 10, 1932, after a second ballot. In 1920 he published a volume of reminiscences which has been translated into English under the title of *Out of my Life*.

Hindenburg Line Name given to defensive positions made by the Germans in 1916-17. It ran from Vimy, near Arras, protecting Cambrai, St. Quentin and other places, to Leon. It was very strong, but shorter than the one held previously by the Germans and called the Siegfried line. In Sept. and Oct., 1918, the line was broken by the British and French advance.

Hindhead District of Surrey, 2 m. from Haslemere and 39 from London. Its common is a famous beauty spot and near it many literary men, including Tennyson, have lived. The Devil's Punch Bowl, a glen below the Portsmouth Road, is notable. Near is Gibbet Hill. The common belongs to the National Trust.

Hindley Urban district of Lancashire, 2½ m. from Wigan, and 202 m. from London by the L.M.S. and L.N.E. Rlys. There are collieries and cotton mills. Pop. (1931) 21,629.

Hindlip Village of Worcestershire, 4 m. from Droitwich. The chief building is Hindlip Hall, the seat of Lord Hindlip. In 1886 Sir Henry Allsopp, head of a firm of brewers, was made Baron Hindlip.

Hinduism Social and religious organisation in India. It is a development of Brahmanism and is divided into a number of groups. There are altogether some 230,000,000 Hindus in India, and they are thus the dominant people in the land. Early Brahmanism was affected by Buddhism and both existed down to about A.D. 800, when the latter disappeared from the peninsula, leaving a new Brahmanism, the product of both philosophies. This modern Hinduism, based on the Puranas, gives less prominence to Brahma than to his associates Vishnu, the preserver, and Shiva, the destroyer and reproducer. They are worshipped in innumerable forms, both in their male and female aspects, the latter being emphasised by Saktism, which derives its teaching from the Tantras.

Hindu Kush Mountain range of Central Asia, W. of the Himalayas, mainly in Afghanistan. Its length is 350 m. and its breadth about 200. The highest point, Tirich Mir, is 25,400 ft. high. There are many others over 20,000 ft.

Hinkler Chick Bert. Australian airman, born at Bundaberg in Queensland in 1891. He entered the flying service, and after the Great War made several notable flights. The longest was his flight from Croydon to Port Darwin, 10,340 m. in 15½ days, in Feb., 1927. In Nov., 1931, he crossed the Atlantic from Brazil to Africa.

Hinterland German word now in general use for a district behind a coastal district. It is chiefly used in Africa, but applies equally well elsewhere. It is sometimes spelled Hinterland.

Hip Projecting part of the human body, formed by the side of the pelvis and the top of the thigh bone, with the flesh covering them; in quadrupeds it is called the haunch. The human hip extends from the waist to the upper part of the thigh. The thigh bone's knobbed head forms with the cup-shaped hollow outside the pelvis a ball-and-socket hip joint, whose dislocation may be congenital or perhaps accidental. Chronic tuberculosis in the hip joint is not infrequent in young children. There are special hospitals in London and elsewhere for diseases of the hip.

Hipparchus Greek astronomer. Born at Nienae, Bithynia, he worked mostly in Rhodes. He discovered the procession of the equinoxes, calculated closely the mean lunar month, improved astronomical instruments, catalogued many hundreds of stars, and first determined terrestrial positions in terms of latitude and longitude. He thus founded plane and spherical trigonometry, and

ranks as the greatest astronomer of antiquity. He wrote a good deal, but only one of his works survives.

Hippocrates Greek physician, born about 460 B.C. in the island of Cos. He belonged to a family of priests and doctors, and lived mainly at Cos and Cnidus practising his art. He died in 377.

Hippocrates is called the father of medicine and for centuries his oath was the one taken by medical graduates. He was much in advance of the ideas of his age, and in some ways anticipated the modern treatment of disease, his views on diet being equally sound. He believed in surgery and his mind was thoroughly scientific in its outlook. He left a number of writings which have been translated into English.

Hippodrome Oblong place, more or less embellished by art, for running chariot races and subsequently horse races in Greece. The word is now used for a place of amusement, whether music hall, theatre or cinema house. The London Hippodrome is in Cranbourn St., W.C.

Hippolyte Legendary queen of the Amazons and the daughter of Ares. One story is that she invaded Attica, but was defeated by Theseus, who married her. Better known is the story of the girl she wore. This was the gift of her father, and one of the labours of Hercules was to obtain it. In so doing he killed the queen.

Hippolytus Greek hero. The son of one story, of Hippolyte, he was loved by Phaedra, his stepmother. As he did not return this love Phaedra killed herself and left Theseus to regard her son as the offender. Theseus called Poseidon to destroy Hippolytus who was thrown by his frightened horses into the sea. Aesculapius restored him to life. His fate is the subject of a play by Euripides.

Hippophagy Practice of eating horseflesh. In France palaeolithic man hunted wild horses for food before domestication began. The ancient Greeks called some Scythian nomads Hippophagi, and horse eating survives in Central Asia. Horseflesh was consumed in Paris during the terror in 1793, and the siege in 1870-1. It is regularly sold in Belgium and Germany, and forms an ingredient in some French sausages. In Great Britain the law forbids the sale of horseflesh unless it is distinctly stated what it is.

Hippopotamus Large mammal now only found in tropical Africa. The ordinary kind, *H. amphibius*, is about 14 ft. long and may weigh 4 tons. It lives on land by the side of rivers, but can swim and remain under water for about 10 minutes. In colour its skin is brown or slate. It has even toes, short limbs and large tusks. Its skin and ivory are valuable. Fossil remains of the hippopotamus have been found in England.

Hippo Regius Ancient city of N. Africa, on the coast, 220 m. W. of Carthage, near the modern seaport of Bona. It was founded by the Carthaginians and was the residence of the Numidian kings. Later it was one of the richest cities of the Roman Empire, and here for 35 years St. Augustine was bishop. In the 7th century it was taken by the Arabs, and soon fell into ruin.

Hire Purchase System by which goods are bought and paid for by a series of instalments. In the

United States almost everything, except food-stuffs, is bought in this way. It is used in selling motor cars, furniture, and gramophones, and, to some extent, for clothing. Its prevalence is regarded by some as responsible for the serious depression in trade that began in 1930.

The system has spread to Great Britain, where many motor cars and much furniture are bought by hire purchase. Some firms trade almost entirely in this way, whilst all the large firms make arrangements for payment by instalments.

English law on the subject is somewhat complicated. Goods bought on the hire purchase system remain the property of the seller until the last instalment is paid. This is usually laid down in an agreement signed by the buyer. The seller retains the right to take back the goods if an instalment is in arrears, and the buyer cannot sell them until they become legally his. In practice, however, firms do not act up to the limits of their power, but make an allowance for the money already paid if they take back the goods, whilst the courts are very inclined to show leniency to buyers when cases are brought before them. A hire purchase agreement must bear a sixpenny stamp.

Hirohito Emperor of Japan. Son of the Emperor Taisho, he was born April 29, 1901. He succeeded his father in 1926, but had been virtual ruler since 1921, when his father retired from public life owing to ill-health. His great aim is peace and prosperity at home and abroad.

Hiroshima City and seaport of Japan. Overlooking a bay on the S. coast of the main island, it is 155 m. from Osaka. Ranking next to Kobe in commercial importance on the inland sea, it is a large cotton spinning centre and a depot for artistic wares. Multitudes flock to the bay annually to visit the ancient Shinto temple, one of Japan's three chief wonders, on the Itakushima or Island of Light. Pop. 195,730.

Hirst George Herbert. English cricketer. Born at Kirkheaton, Yorkshire, Sept. 7, 1871, he became a professional cricketer and first played for his county in 1892. For nearly 30 years he was one of the mainstays of the team, both as a batsman and a bowler, and on many occasions played for England against Australia. As an all-round cricketer Hirst has probably only been surpassed by Grace and equalled by another Yorkshireman, Rhodes. From 1920 to 1930 he was cricket coach at Eton College.

Hispaniola Old name for the island of Haiti. It was given to it by Columbus and means "Little Spain."

Histon Village of Cambridgeshire, 4 m. from Cambridge, on the L.N.E. Ry. The village is a centre for jam making. Pop. 1400.

Historiographer Official historian. After the Renaissance kings sometimes appointed a scholar as historiographer royal, e.g., Boileau and Racine by Louis XIV., Voltaire by Louis XV., and James Howell by Charles II. The old office of King's Historiographer in Scotland was revived in 1763.

History Record of events. It is derived from a Greek word meaning knowledge and in its widest sense is a knowledge of past events in all fields of human activity. The more general use of the word is for the past activities of nations.

History is divided into ancient and modern.

or ancient, mediaeval and modern, the period before ancient history begins being either archaeology or anthropology. Ancient history lasts until the fall of the Roman Empire in the west; mediaeval history dates from 400 to 1453 or 1492, and modern history from then onwards.

The first great historian was Herodotus (q.v.), the father of history. Other great names among the ancients were Thucydides, Livy and Tacitus. Although Thucydides and Tacitus have never been surpassed as philosophic historians, they did not adopt the scientific method of testing all their statements, a method which began in the 18th century and received a great impetus from the labours of Ranke, whose only rival as the greatest of modern historians is Gibbon.

At Oxford, Cambridge, London and elsewhere history is one of the subjects in which courses and examinations for an honours degree are held. In London there are the Historical Association and the Royal Historical Society at 22 Russell Square. The University of London has opened an Institute of Historical Research, under Professor A. F. Pollard, at Malet St., Bloomsbury. The *English Historical Review* is published monthly.

Hit Town of Iraq, on the Euphrates, 33 m. N. of Ramadhe and 85 from Bagdad. It may be the Abaya mentioned in the Old Testament (Ezra viii.). The Euphrates is navigable up to this point and from Hit caravans cross the desert on the way to Diarbasus. It is noted for its gardens, and near are rich supplies of bitumen. The town was occupied by the British in March, 1918.

Hitchin Market town and urban district of Hertfordshire, 32 m. from London, on the L.N.E. Rly. Girton College was founded here in 1869. The chief industries are malling and dealing in agricultural produce. Pop. (1931) 11,382.

Hither Green District of S.E. London. In the Borough of Lewisham, on the S. Rly. Here is Mountfield Park, a pleasure ground, and a large fever hospital.

Hitler Adolf. German politician. Born in Austria, April 20, 1889, he was first an architect. Having settled in Germany he became prominent by raising a body of volunteers to oppose the social democrats. In 1923 his followers engineered a rising in Bavaria, but this was suppressed and Hitler was sent to prison for five years. Soon released, he joined the National Socialist Party and quickly came to the front. He organised the party, which was known as the Nazis, and this soon became a power in the land. In 1930 100 of its members were returned to the Reichstag, and in 1932 Hitler, having become a German citizen, stood at the presidential election against Hindenburg and polled several million votes. His party won great successes at the elections in Prussia and other parts of Germany. Hitler has written a book, *Mein Kampf* (*My Battle*), and has put forward various schemes for reform, some of a very drastic kind.

Hittites Ancient people in Asia Minor. The Biblical names Heth and Hittite indicate a people almost unknown until modern exploration revealed, from 1870 onwards, various distinctive monuments. Prof. Sayce announced in 1880 the discovery of a forgotten Hittite empire, once flourishing in Asia Minor. The people apparently used horsed chariots and pictographic characters of

Indo-European affinity, which are still undeciphered. Established in Cappadocia, their federation took place about 1400 B.C., and their kings reduced the kingdom of Mitanni, fought and made treaties with Egypt, and maintained relations with Mesopotamia. They disappeared about 1200 B.C. Reviving subsequently at Carchemish, they were finally overthrown about 800 B.C.

Hivites One of the Canaanite tribes. They were driven out by the Israelites when entering Palestine under Joshua. A remnant of their descendants survived until Solomon's day (I. Kings x.).

Hoar Cross Village of Staffordshire, 4 m. from Abbots Bromley. It has a hall, long the seat of the Meynell family. The church of the Holy Angels, built by Mrs. Meynell-Ingram, is one of the finest modern churches in the country.

Hoar Frost Term applied to the small crystals of ice formed on the surface of exposed objects when the dew-point or temperature of saturation of water vapour falls below 32° F. Hoar frost is seen especially on nights when the sky is clear and the atmosphere calm. A typical example is the ice pattern formed on a window.

Hobart Capital and seaport of Tasmania, on the S. side of the island. It has a fine harbour on the River Derwent and docks, wharves and warehouses have been built. It is the commercial centre of the island and has fine university and parliament buildings. The industries are shipping, flour milling, fruit preserving, and brewing. Pop. 52,600.

Hobbema Meindert. Dutch artist, born in Amsterdam in 1638 and died there Dec. 7, 1709. After his death he was recognised as one of the greatest of the painters of Dutch life. He is represented in the National Gallery, London, by "The Avenue of Middelharnis," "Showery Weather," and other works.

Hobbes John Oliver. Pen name of the English novelist, Pearl Mary Teresa Craigie. The daughter of John Morgan Richards, an American business man who settled in London, she was born in Boston, Nov. 3, 1867. She made a reputation with *Some Emotions and a Moral*, 1891, and other novels. *The School for Saints*, 1897, and *Robert Orange*, 1900, are her best books. Her plays include *The Ambassador*. She died Aug. 13, 1906.

Hobbes Thomas. English philosopher. Born at Malmesbury, April 5, 1588, the son of a clergyman, he was educated at Oxford. He spent some years as tutor with the Cavendish family, and travelled with his pupils. He associated with Bacon, Ben Jonson and other men of note, and passed a good deal of time in study, especially of mathematics and philosophy. In 1640 he went abroad and was for a short time tutor to Prince Charles, later Charles II. He returned to England in 1651, and lived quietly under the Commonwealth and then under Charles II., who gave him a pension. He died at Hardwicke Hall, Dec. 4, 1679.

The fame of Hobbes rests upon *The Leviathan*, published in 1651. It is a cogent argument for absolute sovereignty, Leviathan being the state, and it has had enormous influence on political thought. In 1640 he wrote a treatise in defence of the royal prerogative.

Hobbs John Berry. English cricketer. Born in Cambridge, Dec. 16, 1882, Hobbs became a professional cricketer and

played first for his native shire. In 1905 he joined the Surrey county eleven, for which he played for over 25 years. In 1925 he beat W. G. Grace's record of 126 centuries. Hobbs was for years one of the opening batsmen in all test matches and the captain of the Players against the Gentlemen. He played in the test matches for the last time in 1930. Hobbs has written several books on cricket, including *Playing for England*, 1931.

Hoboken City and river port of New Jersey, U.S.A., on the Hudson River, opposite New York, the two cities being linked by ferry boats and railway tunnels. Shipping is an important industry and there are some manufactures. Pop. 68,000.

Hobson **Thomas**. Carrier at Cambridge. He kept a livery stable and attained notoriety by his stubborn refusal to let out his horses except in their proper order, hence the phrase "Hobson's choice," which means no choice at all.

Hoche **Lazare**. French soldier. Born at Montreuil, June 25, 1768, in 1793 he was a general. He defeated the Austrians and the Russians, but he is better known as the man who put down the Royalist rising in La Vendée, and as the leader of the force that landed in Ireland in 1796. He was made Minister of War, but died Sept. 18, 1797.

Hock German white wine, especially Hochheimer, a still or sparkling wine produced at Hochheim, near Mainz. Similar Australian and Californian wines, from the Riesling, or hock grape, are less acid.

Hockey Outdoor game played by men and women. The implements are a hard ball and a stick with a curved end, the object being to drive the ball through the goal, which resembles the one used in association football. A side consists of eleven players, five being forwards, three half-backs, two backs and a goalkeeper. The ground should be 100 yds. long and 55 or 60 yds. wide. In front of each goal is a striking circle, and to score a goal the ball must have been hit from this. The ball must not be played with any part of the body, but only with the stick which must not be raised above the shoulder.

There is a Hockey Association founded in 1886, and international matches are played.

The game is also played on ice, where the number of players is seven or eight a side.

Hocking **Joseph**. English author. Born in 1855, he became a minister of the United Methodist Free Church and, like his brother, Silas Hocking, made a name as a novelist. His first book was *Jabez Easterbrook*, 1891, after which others followed in quick succession.

Hocking **Silas Kitto**. English writer. Born in Cornwall, March 24, 1850, he was educated for the ministry of the United Methodist Free Church. From 1870 to 1896 he served as a minister. In 1878 he made a reputation with a story, *Her Benny*, and many others followed, most of them being very popular. In 1923 he published *My Book of Memory*.

Hocktide Mediaeval English festival kept on the second Monday and Tuesday after Easter day. Hock Tuesday and Michaelmas were rent days in rural England. A favourite diversion was for women on Hock Monday and men on Hock Tuesday to bind passers by of the opposite sex, the toll for

release being devoted to church or parish expenses.

Hodson **William Stephen Raikes**. English soldier. Born March 19, 1821, he became an officer in the Indian Army, and as a leader of the Guides saw a good deal of service on the frontier. He is best known as the leader of Hodson's Horse, irregular cavalry that did fine work during the Mutiny. After the fall of Delhi, he pursued the fugitive princes and shot them with his own hand. He was wounded at Lucknow, and died March 12, 1858.

Hoenir God of Norse mythology. He is described as the Lord of the Ooze, and is represented with long legs like a stork. He is said to have given speech to man and woman when they were made, and to have first used the divining rod.

Hofer **Andreas**. Tirolese patriot. Born Nov. 22, 1767, he was an innkeeper when the French invaded the Tirol in 1797. He collected a body of his countrymen and led them in an irregular warfare until about 1805. In 1809 he took the side of Austria against France and won some victories for his beloved land, which for a few weeks he ruled. Peace, however, was soon made, Austria giving up the country, but he continued to fight the French until his forces were beaten. He was then betrayed, and, after a trial, was shot at Mantua, Feb. 20, 1810.

Hoffmann **August Heinrich**. German poet. Born April 2, 1798, at Fallersleben in Lüneburg, he became librarian at the University of Breslau, and in 1835 was made Professor of German Literature there, but he lost his post in 1842, when he published a volume called *Unpolitical Songs*. In 1860 he became librarian at Corvei and there he died, Jan. 19, 1874.

Hoffmann is one of Germany's national poets and his songs became very popular, especially in 1848, because they expressed the national sentiment. He was the author of *Deutschland, Deutschland über Alles*.

Hoffmann **Ernest Theodor Wilhelm**. German writer. Born at Königsberg, Jan. 24, 1776, he became a lawyer, but had also interests in literature, art and music. He held official positions in the public service from 1796 to 1806, after which he spent ten years as a wanderer. In 1810 he received an official post in Berlin, which he held until his death, June 25, 1822. Hoffmann is famous for his fairy stories which have been translated into English. He also wrote short stories and novels in the romantic vein.

Hofmann **Josef Casimir**. Polish musician. Born at Cracow, Jan. 20, 1876, the son of a professor of music, he studied at Warsaw and appeared in public as a pianist when a boy. He gave recitals in London, New York and other capitals, composed concertos and sonatas and wrote on piano playing. In 1927 Hofmann was made director of the Curtis Institute of Music in Philadelphia.

Hogarth **William**. English painter and engraver. He was born in London, Nov. 10, 1697, and was apprenticed to an engraver in silver, but turned later to engraving for book illustration. Under Sir James Thornhill he studied painting, and his numerous portraits show remarkable technical skill, sympathetic treatment and power of expression. His most famous pictures are those in which he satirised the life of his time, as seen in "The Rake's Progress" in the Soane

Museum, London, and "Marriage à la Mode" in the Tate Gallery. He died Oct. 26, 1764.

Hogarth's house in Hogarth Lane, Chiswick, is now a museum, where a number of his works can be seen.

Hogg James. Scottish poet. Called the Ettrick Shepherd, he was born in 1770, and, although without education, soon began to write verse. In 1801 he became known to Sir Walter Scott, who included in his *Border Minstrelsy* several ballads supplied by Hogg. In 1803 his first volume of verse, *The Mountain Bard*, was published, and he wrote a book on sheep. About 1810 he left the country and settled in Edinburgh, where he issued a second volume, *The Forest Minstrel*, and started a paper called *The Spy*. In 1813 he published *The Queen's Wake*, his greatest poem, and then settled on a farm in Dumfriesshire. As a farmer he was a failure, but he wrote a great deal, both in prose and verse, including articles in *Blackwood's Magazine*. He died Nov. 21, 1835.

Hoghton Village of Lancashire, between Preston and Blackburn, 213 m. from London, on the L.M.S. Rly. Hoghton Towers, a 16th century house, is associated with the story of James I., when visiting there, knighted the loin of beef.

Hogmanay Word used in Scotland for New Year's Eve. It is a time of merry making, and is marked by the giving of presents.

Hog's Back Elevation in Surrey, part of the North Downs. It is about 10 m. long and 500 ft. high, and stretches from Guildford to Farnham, with a road along the top.

Hogshead Term applied to a large cask of varying capacity for holding sugar, tobacco, molasses, etc. A hogshead of tobacco weighs from 12 to 18 cwt., of W. Indian sugar 13 to 16 cwt. As a measure of liquid capacity a hogshead of wine equals 63 gallons of ale, and beer 54 gallons.

Hohenlinden Village of Bavaria, 20 m. from Munich. Here, on Dec. 3, 1800, the French under Moreau gained a great victory over the Austrians. A popular poem by Thomas Campbell describes the battle.

Hohenstaufen Famous German family. It took its name from a castle in Württemberg. Before 1100 a member of this family was made Duke of Swabia. In 1138 Conrad of Hohenstaufen was made German King, and the family kept this office until 1254. Its most famous members were the great emperors Frederick I. and Frederick II. The family became extinct when Conradin was executed in 1268.

Hohenzollern German family, members of which were kings of Prussia, 1700-1918, and German emperors, 1871-1918. The name is taken from a hill called Zollern in Württemberg, about 30 m. from Stuttgart. From the 11th century the Counts of Zollern gradually became more powerful until they held an important place among the German princes.

In 1415 Frederick of Hohenzollern was made Margrave, or Elector, of Brandenburg, and his successors, especially Frederick William, called the Great Elector, made this into an important state. In 1700 the Elector became King of Prussia, and his successors, the greatest being Frederick II., were kings until 1918. In 1871 King William I. was made head of the new

German Empire and the Hohenzollerns played a great part in European history until William II. abdicated in 1918. A branch of the Hohenzollerns ruled until 1848 over a little principality in S. Germany. One of them, Charles, was made King of Rumania in 1918, and the Hohenzollerns are still rulers of that country.

Hokkaido Name used for the N. part of the Empire of Japan. It includes the island of Yezo, the S. part of Sakhalin and the Kurile Islands.

Hokusai (Katsushika). Japanese painter. Born in 1760, he became the most famous artist of the popular school. Of a very independent character, he followed no other painter closely, and his work is of unusual delicacy. His independence also caused him to cling to his peasant ancestry, and he died in poverty in 1849.

Holbeach Market town and urban district of Lincolnshire, 8 m. from Spalding and 100 m. from London. Near the town is a stretch of reclaimed land known as Holbeach Marsh. Pop. (1931) 6111.

Holbein Hans. German painter. Born about 1460, he is known as Holbein the Elder to distinguish him from his famous son of the same name. His works show the beginning of Italian influence on German painting. The best are in the cathedral at Augsburg and in other German cities. He died in 1524.

Holbein Hans. German painter and engraver. Born at Augsburg in 1497, he was the son of Hans Holbein the Elder. At an early age he showed great promise in art, especially in engraving, designing of stained glass and decorative work. In 1516 he removed to Basle and later visited England where Sir Thomas More commissioned him to paint portraits, and in 1536 he was appointed court painter to Henry VIII. He died of the plague in London in Oct. or Nov., 1543.

Holbein is one of the world's great portrait painters. He painted Henry VIII., Anne of Cleves, Jane Seymour, the Duke of Norfolk, Erasmus, Melancthon, and many others equally famous. He was also responsible for several religious pictures and some woodcuts. Some of his paintings are at Windsor, others in the National Gallery, London, the Louvre, Paris, and in Vienna. His wonderful painting of Moret the jeweller is at Dresden, and "The Ambassadors" is in Longford Castle, Salisbury.

Holborn Borough of the county of London. Covering only 400 acres, it lies between the city and Westminster. The district includes Bloomsbury, Lincoln's Inn and Gray's Inn. **Holborn Viaduct** was built in 1867-69 to carry the road over the valley where the River Holbourne once flowed. It is 1400 ft. long, and on it is the City Temple. Pop. (1931) 38,816.

Holbrooke Joseph Charles. English musician. Born at Croydon, July 6, 1878, the son of a musician, he was a pianist and conductor, but his reputation rests mainly upon his compositions. In 1901 he produced *The Raven*, his first orchestral work. A number of others include *Queen Mab*, *The Bells*, *And Lang Syne*. He also wrote operas and ballets, as well as a comic opera, *The Snob*, and gave concerts of modern English chamber music in London and in the provinces. Holbrooke has also written a great number of songs.

Holda Figure in German folklore. She is a kindly goddess and appears much

in fairy stories. When it snows it is said that *Holda* is making her bed and the feathers are flying about. She is represented as driving in a cart and is regarded as the goddess of domestic life and agriculture.

Holden Sir Edward Hopkinson. English banker. Born in Manchester, May 11, 1848, he became a clerk in the Manchester County Bank in 1866. He moved to Birmingham where he became manager of the Birmingham and Midland Bank. About this time the era of banking amalgamations began, and in this he took a leading part. In 1898, his bank, having taken over others, became the London, City and Midland Bank, and of this he was managing director. In 1918 it took over the London Joint Stock Bank and later became known as the Midland Bank. Of this, the largest in the country, Holden was chairman and managing director until his death, July 23, 1919. From 1906-10 he was a Liberal M.P., and in 1909 he was made a baronet.

Holden Sir Isaac. English manufacturer. Born at Hurlet near Paisley, May 7, 1807, the son of a Cumberland miner, he became a teacher in Paisley, but soon moved to Leeds and from there to Reading. In 1830 he gave up teaching and took a position as a bookkeeper to a firm in the woollen industry at Cullingworth. Holden invented a wool combing machine that proved a success and started in business with Samuel C. Lister, afterwards Lord Masham. A little later he opened mills at Bradford with his sons, and this concern became very prosperous. He was a Liberal M.P. 1865-68 and 1880-85, and in 1893 was made a baronet. As a Liberal Unionist he represented the Kelghley division, 1886-95. He died Aug. 13, 1897. His son Angus was made a baron in 1908.

Holderness District of Yorkshire, E.R., formerly called a wapentake, extending from the Humber to Spurn Head.

The title *Earl of Holderness* was held by the old Yorkshire family of Harby from 1682 to 1778. Robert, the 4th earl, was Secretary of State from 1751 to 1761. His estates passed to his son-in-law, the Duke of Leeds.

Hole Samuel Reynolds. English clergyman. He was born Dec. 5, 1819, his father being a brewer and landowner at Cauntton near Newark. He became curate and then vicar of Cauntton, where he was also squire. In 1887 he was chosen Dean of Rochester. He died Aug. 27, 1904. Hole was a man of many interests; a humorist who counted John Leech and Thackeray among his friends, and an athlete who hunted and shot. He is best known, perhaps, as a grower of roses and a writer on this and other subjects. His books include *A Book about Roses*, *Memories* and *More Memories*.

Holford Sir George Lindsay. English collector. Born June 2, 1860, he was the son of Robert S. Holford, who built Dorchester House, Park Lane, London, and was a great collector of works of art. His collections were left to his son, Sir George, who in 1923 sold some of his possessions. After his death on Sept. 11, 1926, the pictures and books were all sold, the pictures fetching over £530,000 and the books £200,000. Dorchester House (q.v.) was pulled down.

Holinshed Raphael. English chronicler. He lived in the 16th century and was a translator in the employ of Reginald Wolfe, a printer. With several assistants he compiled a book in two volumes called *The*

Chronicles of England, Scotland and Ireland, 1577, which was one of the sources used by Shakespeare. He was a Cheshire man by birth and died about 1580.

Holkham Village of Norfolk, 2 m. from Wells. The estate has been in the family of Coke since 1659 and here the Earl of Leicester, known as Coke of Norfolk, carried out experiments of great benefit to agriculture.

Holland District of Lincolnshire. See LINCOLNSHIRE.

Holland District of the Netherlands. The name means the low-lying land. In the 15th century it became part of the duchy of Burgundy which belonged to the great empire of Charles V. It passed to Charles' son, Philip II., and was one of the provinces that revolted to form the Dutch Republic. Since then the word has been loosely used for the republic and for the kingdom that succeeded it.

North Holland and South Holland are two provinces in the kingdom of the Netherlands. The former contains Amsterdam, but Haarlem is its chief town. The Hague is the capital of the latter. See NETHERLANDS.

Holland Baron. English title borne by the family of Fox. Henry Fox was born at Chiswick Sept. 28, 1705, and in 1763 was made a peer. He bought the London residence called Holland House. Charles James Fox was his younger son.

The 4th baron edited his father's *Memoirs of the Whig Party*. When he died in 1859 the title became extinct.

Holland Sir Thomas Henry. English scientist. He was born Nov. 22, 1868 of Canadian parentage. He was Director of Geological Survey in India, 1903-1909; Professor of Geology in Manchester University, 1909-1918; and Rector of the Imperial College of Science, 1922-1929. In 1929 he was president of the British Association, and he has done a great deal of work on commissions and committees appointed to report on scientific matters. In 1929 he became Principal of Edinburgh University.

Holland House Residence in London. It stands in a park between Kensington Road and Uxbridge Road, and is the property of the Earl of Ilchester, the heir of the Fox family. In the Jacobean style, the house was built by Sir Walter Cope about 1610. It was a social, literary, and political centre of the Whig Party during the time of the 3rd Lord Holland (1800-1845). The Holland House circle included Fox, Macaulay, and Sidney Smith.

Holland Park District of London. It is between Kensington and Notting Hill, adjacent to the park in which stands Holland House.

Hollander Bernard. British physician. Born in Vienna, 1861, he settled in London in 1883. In 1899 he was naturalised, and soon made a reputation as a specialist on nervous and mental disorders. He helped to found the Ethnological Society, and put forward a scientific system of phrenology. He collected a great number of facts about the working of the brain, and wrote much for scientific journals about its functions.

Hollar Wenceslaus. Bohemian artist. Born in Prague, July 13, 1607, he worked in Antwerp and elsewhere. In 1637 he settled in England, where he was drawing master to Prince Charles, later Charles II.

Hollar made drawings of several English and German towns, and engraved a map of London in 1666, showing the area of the great fire. He died March 28, 1677.

Holloway District of London, in the Borough of Islington, about 3 m. N. of the city. Here are the Northern Polytechnic Institution, the prisons of Pentonville and Holloway, and the Caledonian Market.

Holloway College College for the education of women. Thomas Holloway, a Plymouth man, made a large fortune by the sale of pills and ointments, chiefly by advertising at a time when few traders spent money in this way. He died Dec. 26, 1883, and left £600,000 to found the college, as well as money for a sanatorium. The college, opened in 1886, is at Englefield Green in Surrey, accommodates about 350 pupils, and has a fine collection of pictures, left by the founder. It is a college of the University of London.

Holly Large genus of shrubs and trees of the holly order (*Ilex*). They are native in every continent, but are mostly found in Central and S. America. The common British and European *I. aquifolium* is an evergreen with ashly bark, waxy, spiny, glossy, smooth leaves, and small white flowers bearing scarlet berries. The greenish white wood furnishes walking sticks and teapot handles; the sap from the bark formerly provided bird lime. The leaves and berries are largely used as a decoration at Christmas time. It grows to a height of 30 or 40 ft. and specimens of 80 ft. have been noted. Cultivated forms, including Japanese, have yellow berries, variegated leaves and drooping branches.

Hollyhock Hardy perennial herb of the mallow order (*Althaea rosea*). It is a tall plant with lobed leaves and a spike 8 or 10 ft. high of single purple, pink, yellow, or white flowers. It came to England in the 16th century, and is a favourite in cottage gardens. Cultivated varieties include many double blooms, some displaying darker shades such as crimson and almost black.

Hollywood Centre of the American film industry. It is in California, W. of Los Angeles, and has a beautiful climate and surroundings. See LOS ANGELES.

Holme Lacy Village of Herefordshire, on the Wye, 5 m. from Hereford. Here is Holme Lacy House, long the seat of the Scudamore and Stanhope families, represented by the Earl of Chesterfield. Built in the 17th century it is now the property of the county council of Herefordshire.

Holmes Oliver Wendell. American writer. He was born at Cambridge, now part of Boston, Aug. 29, 1809. After a period of study in Paris, he became a doctor, but ten years later gave up the profession for a literary life. He died Oct. 7, 1894.

One of the most charming and quietly thoughtful of American writers, Holmes made his reputation with *The Autocrat of the Breakfast Table*, 1858, which appeared first in the *Atlantic Monthly*. Later came *The Professor at the Breakfast Table*, and *The Poet at the Breakfast Table*. Over the *Teacups*, one of his later books, is in a similar vein. He wrote a powerful novel, *Elsie Venner*; two others called *The Guardian Angel* and *A Mortal Antipathy*; also a book of travel, *One Hundred Days in Europe*; lives of R. W. Emerson and J. L. Motley, and much verse.

Holmfirth Market town and urban district of Yorkshire (W.R.). It is 6 m. from Huddersfield, and a centre of the woollen industry. Pop. (1931) 10,407.

Holmium Rare metallic element having the symbol Ho, and atomic weight 163.5. It occurs along with other rare earths in the minerals gadolinite in Sweden, and samarskite in N. Carolina. Holmium was isolated in 1879 from the earth, cerium oxide, obtained from gadolinite.

Holm Oak Evergreen species of oak tree (*Quercus ilex*). Native in the Mediterranean region, it is also called holly-oak. It has glossy dark-green leaves, more or less prickly edged, but sometimes without prickles; its acorns are short-stalked. It sometimes reaches a height of 90 ft. The dark-brown wood is used for furniture, and in Spain for fuel.

Holocene Term sometimes used in geology for the period corresponding to the quaternary epoch of some authorities. It follows the pleistocene period and extends down to the present day.

Holofernes Commander of Nebuchadnezzar's army. The story, told in the Book of Judith, part of the Apocrypha, is that with an army he came to besiege Jerusalem, but a maiden named Judith made her way into his camp, gave him wine until he fell into a drunken sleep, and then cut off his head, so saving the city.

Holograph Term applied to a document written entirely by the one who signs it, as in the case of a will in the handwriting of the testator. By Scots law a holograph will is valid even if the signature is not witnessed.

Holst Gustav. English composer, born at Cheltenham. Sept. 21, 1874. His musical compositions include *The Planets*, *Ode to death*, *The Cloud*, *Egdon Heath*, and others for voices, strings and organ.

Holstein District of Germany. It lies between the Eider and the Elbe, and has Kiel for its chief town. It is an agricultural area and has some large lakes. In the Middle Ages Holstein was part of Saxony; it then became a county and with Schleswig in the N. was ruled by the King of Denmark who, in 1861, after a short war, surrendered the duchies to Prussia and Austria. In 1866 Prussia obtained both, and retained Holstein at the peace of 1919.

Holsworthy Market town and urban district of Devonshire, 46 m. from Exeter. A horse fair is held here in July. In 1819-26 a canal was made from Holsworthy to Bude, but it is not now used. Pop. (1931) 1403.

Holt Town of Norfolk, 10 m. from Cromer. There is a grammar school founded in 1555 by Sir John Gresham, who was born here. It is now a large public school with fine modern buildings, and is controlled by the 'Fishmongers' Company. Pop. 2100.

There are other Holts in England. One is a village in Wiltshire, 94 m. from London. Pop. 1000.

Holy Alliance Treaty signed in 1815 in Paris between Alexander I. of Russia, Francis II. of Austria, and Frederick William III. of Prussia. By it they undertook to apply the principles of Christianity to the countries over which they ruled, and to other countries with which they

had dealings. Other European sovereigns signed the treaty later. It helped to keep the peace in Europe for some years after the overthrow of Napoleon.

Holycross Ruined abbey in Tipperary, Irish Free State. It is on the Suir, 4 m. from Thurles, and was founded in 1182.

Holyhead Market town, seaport and urban district of Anglesea. It is on Holy Island on the L.M.S. Rly. and is chiefly known as the port of embarkation for Ireland. The older harbour is used for fishing. Pop. (1931) 10,707.

Holy Island Name of several islands. One is off the coast of Anglesea. It covers 15 sq. m., and on it stands Holyhead.

Another **Holy Island** is off the coast of Northumberland, also called Lindisfarne.

Holy Land Name used by Christians, especially in the Middle Ages, for Palestine.

Holyoake **George Jacob**. English politician. Born in Birmingham, April 13, 1817, he became a chartist, and in 1843 was imprisoned for blasphemy. In 1851 he issued *Secularism, the Practical Philosophy of the People*. He wrote also *A History of Co-operation in England*, *The Limits of Atheism*, *Sixty Years of an Agitator's Life* and *Hygonos Worth Remembering*. He died in 1900.

Holy of Holies Inner chamber of the Jewish tabernacle and temple. It was "the most holy place," with ark and mercy seat, and was separated by a veil from the outer chamber, "the holy place."

Holy Orders Term denoting the status or degree of persons admitted to the Christian ministry by the laying on of hands of a bishop lawfully ordained. The Anglican Church recognises *three grades, bishops, priests, and deacons. In the Roman Catholic Church the major or sacred orders included also subdeacons.

Holy Places Localities in and near Jerusalem associated with Christ's life. They include the Holy Sepulchre, Gethsemane, Olivet, Bethlehem and other sacred sites. The Pope entrusted their custody to the Franciscans in 1230 and later this authority passed to France, but the subject was complicated by the fact that the Turks were in possession. Difficulties over the custody of the Holy Places between France and Russia, representing western and eastern Christianity, helped to bring about the Crimean War.

Holyrood Royal palace in Edinburgh. It was originally an abbey founded in 1128 by King David I., and was so named because it possessed a piece of the true cross. It belonged to the Augustinian Canons and was destroyed in the 16th century.

Near the abbey James IV. built a palace and this was a residence of the Scottish kings. Here Mary was married to Darnley, and Rizzio was murdered; here Charles I. was crowned, and Charles Edward held a short but splendid court. The house was rebuilt by Charles II., and the palace is still used for State purposes. Here the Lord High Commissioner to the Church of Scotland has his headquarters, and here the Scottish representative peers are elected. Of interest are the abbey ruins and the apartments occupied by Mary. Until 1880 the abbey was a place of sanctuary.

Holy Spirit Third person of the Trinity. Gen. I. mentions the Spirit

of God; the Psalms and Isaiah use the epithet Holy. Gradually the spirit was differentiated as an aspect of God's being separable from His wisdom, and recognised as a separate person. The New Testament, witnessing to Christ's advent as God's incarnate Son, also emphasised the function of the Holy Spirit, described as the Spirit of Truth and, especially by St. John, as the Paraclete or Comforter. The early Church believed that the Holy Spirit proceeded from the Father; the insertion of *filioque*, "and the Son," in the Nicene creed caused the Great Schism between eastern and western Christendom.

Holytown Town of Lanarkshire. It is 11 m. from Glasgow, and 389 m. from London by the L.M.S. Rly. Here are iron mines and collieries, also iron and steel works. Pop. 9976.

Holy Week In the Christian year, the week before Easter. The ancient name, the Great Week, survives in the orthodox Eastern Church. It is distinct from Passion Week, which properly begins on Passion Sunday. From the 3rd century onwards abstinence from flesh, wine and public business was enjoined on Christians. The Church of England and the Roman Catholic Church hold special services during Holy Week and there is a certain, but decreasing, amount of abstinence from pleasure.

Holywell Market town and urban district of Flintshire. It stands on the estuary of the Dee, on the L.M.S. Rly. It is famous for its well, the waters of which are said to work miracles. Called Winifred's Well, it is inside a chapel built in the 15th century. Near the station of Holywell Junction are the ruins of a Cistercian Abbey. Pop. (1931) 3423.

Holywood Watering place and urban district of Co. Down, N. Ireland. It is 4 m. from Belfast, on Belfast Lough, and has the usual seaside attractions for visitors. Pop. 4000.

Homage Service due from a knight or other vassal to his lord and, therefore, the act of fealty itself. This was done by the vassal kneeling before the lord, and saying, "I become your man for the lands I hold of you and will be faithful to you against all men, saving only the fealty which I owe to my lord the king." As a ceremonial act homage is paid to-day to the sovereign by the peers at his coronation, and by bishops on appointment.

Homburg Inland watering place of Germany, 9 m. from Frankfurt on the little River Hohen. It is famed for its waters, which, being chalybeate and saline, are good for certain complaints. There is a castle here, once the residence of the landgraves of Hesse-Homburg. Homburg was at one time a noted gambling centre. A soft felt hat worn by men is named after it. Pop. 14,000.

Home Earl of. Scottish title held by the family of Home. In 1473 Sir Alexander Home was made a Lord of Parliament, in 1605 Alexander, the 6th lord, was made an earl by James I. Cospatrick, the 11th earl, married the heiress of the Douglas family and thus obtained estates in Lanarkshire, including Douglas Castle. The old seat of the Homes is Home Castle in Berwickshire where are the family estates. The earl's eldest son is called Lord Dunglass.

Home Counties Term applied to the counties of Kent, Surrey, Middlesex, Berkshire, Buckingham-

shire, Hertfordshire and Essex. They are so called because they are the counties nearest to the metropolis.

Home Office Department of the British Government. Its head is a Secretary of State, and he ranks as the senior secretary. On this account he is in special touch with the sovereign, and must be in attendance when a possible heir to the throne is born. Through him the sovereign issues proclamations and pardons. The office was created in 1782. At one time all the administration of the country was looked after by the Home Office, but as other departments were created its sphere of activity was contracted; at the same time, however, new duties were imposed upon it. This department is responsible for the administration of justice and the control of the police. By its officials, factories and mines are inspected and all matters affecting licensing and burials are supervised. Prisons and aliens are other subjects under the control of this department. The secretary is assisted by an under-secretary, who is a politician, a permanent under-secretary and a large staff of civil servants. The building is in Whitehall, London, S.W.

Homer Greek poet. Little is known of his life; indeed, some think that he never existed, being merely a legendary figure to whom poems written by a number of singers were attributed. The better opinion is, however, that he actually lived between 1200 and 850 B.C. Seven cities claimed to be his birthplace: Chios, Smyrna, Rhodes, Argos, Athens, Colophon and Salamis in Cyprus. He is believed to have been blind and to have travelled about singing his poems.

Homer wrote two of the world's greatest epics. One called the *Iliad* describes events in the concluding weeks of the Siege of Troy by the Greeks. The other called the *Odyssey* describes the wanderings of Ulysses (Odysseus) after the fall of that city. They are written in the Ionic dialect, and each is divided into 24 books. There are many English translations of both poems, notable ones being by Andrew Lang, S. H. Butcher and Walter Leaf, and older ones by Chapman and Pope. The authorship of the poems is the subject of much literature, including writings by W. E. Gladstone.

Homer Breed of domestic pigeon, used for long-distance racing and message carrying. Crossing with Antwerp carriers produced show homers, whose crossing with working homers produced exhibition flying homers.

Home Rule Name given to the movement for granting Ireland a measure of self-government. It began about 1870 and was from the first a constitutional, not a revolutionary, one. About that date members pledged to secure some measure of self-government were sent to Parliament by the Irish constituencies and soon those formed a distinct party, some 80 strong. Called Nationalists they were led in turn by Isaac Butt, C. S. Parnell and J. Redmond.

In 1885 Gladstone decided to grant home rule to Ireland and in 1886, in spite of the defection from his party of an influential group called Liberal Unionists, he introduced the first Home Rule Bill. This provided Ireland with a parliament of two houses, but it was defeated in the House of Commons. In 1893, Gladstone, again in office, introduced the second Home Rule Bill. This differed in some respects from the earlier one; it gave Ireland

its parliament, but left 80 Irish members at Westminster. This bill passed the Commons, but was defeated in the House of Lords. Its defeat was due in part to the vigorous resistance offered to it by the Ulstermen.

The third Home Rule Bill was introduced by the Liberal ministry under H. H. Asquith in 1912. Twice it was rejected by the House of Lords, but, under the terms of the Parliament Act, it became law in Sept., 1914, although serious opposition was offered to it in Ulster. By then, however, the Great War had begun, so its operation was postponed. Before more could be done the position had been entirely changed by the rise of the Sinn Féin Party, and the disappearance of the bulk of the Nationalists from Parliament in 1918. A settlement was made in 1921, by which the Irish Free State was formed as a self-governing dominion of the British Empire, and Northern Ireland remained part of the United Kingdom.

Homicide The taking of human life. It may be justifiable, when done under State sanction; excusable, when due to accident or in self-defence; or felonious, whether murder, manslaughter or suicide.

Homildon Hill One of the hills of the Cheviot range, near Wooler. Here on Sept. 14, 1402, a fight took place between the English and the Scots. The Scots under the Earl of Douglas were returning from an invasion of England when they were met by an army led by the Percies. The fight was decided by the skill of the English archers who killed some hundreds of Scots as they were moving down the hill.

Homily Familiar religious address expounding a scriptural passage. The early Christians continued this practice of the Jewish synagogues as when S. Paul "talked" throughout the night at Troas (Acts xxii.). Two books of homilies, 12 and 21, published in 1547 and 1563, are mentioned in the 36th article of religion in the Book of Common Prayer.

The branch of theological practice which concerns the method of preparing and delivering sermons and other religious discourses is called homiletics. It forms part of the normal training of students for the ministry in all Christian churches.

Hominy Maize that is hulled and crushed to make meal. It is used for porridge, puddings and in other ways.

Homoeopathy System of medicine based upon the principle that like cures like (*similia similibus curantur*). It was introduced in 1796 by Samuel Hahnemann, a German physician. In homoeopathy minute quantities of a drug are administered to produce symptoms similar to those of a disease. Many of the remedies have been adopted by allopaths, such as aconite in inflammatory complaints, and homoeopathy has had a strong influence on ordinary practice in stimulating the study of the physiological action of drugs.

There is a homoeopathic hospital in London, and societies for the promotion of homoeopathic practice. The hospital, founded in 1849, is in Great Ormond St., London, W.C.

Homology Term in biology referring to the common origin of organs or parts of a plant or animal organism. Thus the arm of a man, the wing of a bird, the foreleg of a dog are homologous structures, although in each case the function is different.

Homonym Word having the same sound as another, but a different meaning. Examples are, hair and hare, break and brake.

Honan Province of China. In the centre of the country, it is divided into two parts by the Yellow River. It covers 68,000 sq. m. The soil is fertile, especially in the south. In the north are coal mines. Kaifeng is the capital.

Honduras Republic of Central America. It lies between the Caribbean Sea and the Pacific Ocean and has Nicaragua to the south and Guatemala to the north-west. There are many mountains, some of considerable height, and a number of rivers. Tegucigalpa is the capital. The ports are Puerto Cortez, Omoa, Trujillo and Puerto Castilla on the east or Atlantic side and Amapala on the Pacific side. There are a few miles of railway and some good roads. The area is 44,275 sq. m. Pop. 773,400.

Honduras grows bananas, coffee, coconuts, tobacco and other tropical products. There is some mining and a few manufacturing industries. The country became an independent republic in 1821. The government is in the hands of a president elected for four years and a council of ministers, who are responsible to a congress of 43 deputies. In religion the people are chiefly Roman Catholics. The unit of currency is the silver peso, worth about 2s. 1d. The metric system of weights and measures is used.

Honduras British. Colony of Central America, it has a coast line on the Caribbean Sea and covers 8600 sq. m. The capital is Belize, which is also the name of the chief river. The country produces mahogany and other timbers, coffee, bananas and other tropical fruits. A crown colony, it is under a governor who is assisted by an executive council and a legislative one. The unit of currency is the dollar, and the chief bank is the Royal Bank of Canada. In Sept., 1931, great damage was done by a hurricane. Pop. 49,250.

Hone William. English author. Born in Bath, June 3, 1780, he failed as a London bookseller, but soon made a name by his writings, especially some political satires. For a parody on the Prayer Book he was prosecuted in 1817, but the only result was to increase his popularity, and the public subscribed £3000 for him. After a period in prison for debt he started a coffee house in London, but failed again. Hone became converted to Christianity and appeared as a preacher. He died at Tottenham, Nov. 6, 1812.

In 1817 Hone started *The Reformatory Register*, and he wrote many books, but to-day he is best remembered by his *Everyday Book* and his *Table Book*, both full of strange and interesting information.

Honesty Annual or biennial cruciferous herb (*Linaria annua*). A native of Central and W. Asia, it has toothed, heart-shaped leaves, and stems bearing flowers which are usually purple but sometimes white. It grows in English gardens and the silvery partitions of the ripened seed pods are useful winter decorations. The perennial form has smaller flowers and seed pods.

Honey Sweet substance prepared by bees. The bees obtain the honey from flowers and store it in honeycombs, where it serves as food for the young. Bees are kept for the honey they produce and the combs taken from the hive are at suitable times.

Honey consists mainly of sugar in the form of levulose and dextrose. The best, called virgin honey, is taken from the hive before the bees swarm. Other forms are clover honey and heather honey. Honey is imported from California, New Zealand and other countries. In medicine it is used as a laxative.

The honeycomb is a mass of hexagonal cells of wax in which the hive bees store their honey and pollen as well as the young brood. In modern beekeeping the use of wax foundations and the wooden frame or section for the comb renders easier the handling of the bees and gives increased honey production.

Honeyberry Fruit of the nettle tree. It is blackish in colour, very sweet, and ripens in winter. A native of the countries around the Mediterranean Sea, it belongs to the natural order *Urticaceae*.

Honey Dew Sticky, sugary, dew-like exudation from leaves and stems of various plants, especially in warm, dry weather. It may exude from punctures made in the plants by plant lice and scale insects, or appear as a natural secretion exuded through water pores or broken tissues. Ants feed upon it; gardeners syringe it away. It sometimes drops in showers of manna.

Honey Eater Family of slender-billed singing birds related to the sun bird. The brush-like tips of their long tongues extract insects and nectar from flowers. Many are handsomely plumaged, mostly in greens and yellows, and in size they are about equal to the thrush. They are found in Australasia, and the New Zealand tui, or parson bird, is a favourite cage bird locally.

Honeysuckle Genus of erect or climbing shrubs of the elderberry order (*Lonicera*). They are found in warm and temperate parts of the northern hemisphere and the flowers give out a fragrant odour. The plant is found wild, but it will grow in any garden provided the soil is moderately dry, but a shady position is best.

Honfleur Seaport of Normandy, France. It stands on the estuary of the Seine, opposite Havre. There is a small harbour. The chief buildings are the pilgrim chapel of Notre Dame de Grace and the church of St. Catherine. Honfleur was once an important port and was taken by Henry V. in 1415. Pop. 8700.

Hong Kong British possession in China. It consists of an island at the mouth of the Canton River, about 90 m. from Canton, a piece of land on the mainland called Kowloon, and an area around that settlement. Properly speaking, Hong Kong is the island only, but the name is used for the colony as a whole. The island covers 32 sq. m., and the colony 390. The island has a magnificent harbour, which is a free port and one of the greatest trading centres in the East. It is also a military and naval station. The capital, Victoria, stretches along the south side of the harbour. Hong Kong was handed over to Great Britain in 1812, and Kowloon in 1860. The extension became British in 1898. The governor is assisted by an executive and a legislative council. The colony has a university and several schools.

Hong Kong has some industries, including sugar refining and rope making. It is the headquarters of the Hong Kong and Shanghai Banking Corporation. Pop. 977,900.

Honiton Borough and market town of Devonshire. It is on the Otter,

16 m. from Exeter and 155 from London, on the S. Rly. The parish church has a 15th century screen, and there is a grammar school. Lace has been made here for 300 years. There is an agricultural trade and beer is brewed. The town has a Fair dating back to 1221. Pop. (1931) 8008.

Honley Urban district of Yorkshire (W.R.). Near Huddersfield: it is 185 m. from London by the L.N.E. Rly. Woollen goods are manufactured. Pop. (1931) 4611.

Honolulu City and seaport, also, since 1820, the capital of the Hawaiian Islands. It stands on Oahu Island, and is built on American lines. The place has a good harbour and does a considerable shipping trade. Pop. 11,000.

Honorius Name of four Popes. Honorius I. was Pope from 625 to 638, and Honorius II. from 1124 to 1130. Honorius III., Pope from 1216 to 1227, had a good deal to do with the foundation of the Franciscan and Dominican orders. Honorius IV. was Pope from 1285 to 1287.

Honorius Roman emperor. He was a son of Theodosius the Great and in 395 was made Emperor of the West, his elder brother, Arcadius, ruling the East. During his reign the barbarians invaded the empire and in 410 Alaric, King of the Visigoths, captured and looted Rome. The Roman soldiers were called away from Britain and other possessions were also lost. The emperor, whose full name was Honorius Flavius, could or would do nothing to arrest this decay. He died at Ravenna, Aug. 27, 423.

Honour Distinction of any kind. One kind of honour is a title or distinction bestowed by the King, e.g., Companion of Honour (C.H.). Other honours are fellowships of learned societies, honorary degrees at the universities and the freedom of cities.

The bestowal of hereditary titles in Great Britain was in 1922 the subject of inquiry by a royal commission. As a result a permanent committee was set up to examine and report upon the claims of those recommended by the Prime Minister for any dignity or honour on account of political service before their names are submitted to the King.

Honour In feudal times an estate of two or more manors held by one lord. Each manor retained its separate organisation, but one court baron served for all. Two of the greatest honours in England were those of Clare and Richmond.

Honourable Title of honour. In Great Britain it is borne by the younger sons of earls and by all the sons and daughters of viscounts and barons. Judges of the high court and the sons of life peers are also honourables. The word is usually abbreviated in writing to Hon. In Australia, Canada and New Zealand all members of the legislature bear the title, as do the judges.

The higher title of right honourable is given to earls, viscounts and barons; to members of the Privy Council; to the lords justices and lords of appeal and to the lord mayors of London and York, and the lord provosts of Edinburgh and Glasgow. The title of most honourable is used for marquesses.

Honourable Artillery Co. Territorial regiment of the British Army. It dates from 1537 and was formed to enable Londoners to practise with cross-bows and hand guns. In 1641 the ground in Finsbury

was given to it as a training ground, and here, in City Rd., London, E.C., are its headquarters called Armoury House. It consists of infantry and artillery, and forms part of the Royal Regiment of Artillery. The regiment did splendid service in the Great War. In 1638 an Ancient and Honourable Artillery Company which still exists, was founded at Boston, U.S.A.

Honthorst Gerard van. Dutch painter. Born at Utrecht, Nov. 4, 1590, he was a pupil of Floemart, but was influenced greatly by the realism of Caravaggio. His paintings cover a variety of subjects such as sacred and profane history, genre, and especially night scenes, hence he is sometimes called *Gherardo della Notte*: in later life he specialised in portraiture. His masterpiece, "Christ before Pilate," is in the National Gallery, London, and specimens of his work are in most large collections. He died in Utrecht, April 27, 1656.

Hooch Pieter de. Dutch painter. Born at Rotterdam in 1629, he attained little contemporary fame. He has left about 300 canvases, all of which display great art and finish. He was essentially a painter of interiors, delighting in the subtle variations of light diffused through windows and doors. He died about 1683.

Hood Battle cruiser. Successor to several earlier vessels of this name, she is 860 ft. long and displaces 41,200 tons, carries eight 15 in. guns and has a speed of 31 knots. She was finished in 1919.

Hood Flexible covering for the head. It was much worn in England in the Middle Ages, especially by women, children and priests. Very often it was part of the cloak, as in the case of little Red Riding Hood.

The use of the hood by monks led to its use at the universities. Each university degree has a distinctive colour for its hood. For instance, at Oxford the M.A. wears a hood lined with crimson silk, and the B.A. one lined with white fur.

Hood Thomas. English poet and humorist. Born in London, May 23, 1799, the son of a bookseller, he became a clerk, then an engraver. In 1821 he joined the staff of the *London Magazine*. In 1826 and 1827 he published *Whims and Oddities*, and then came *National Tales*. He was editor of the *Gem*, and from 1830 to 1839 issued yearly a *Comic Annual*. From 1835-40 he lived abroad. In 1840, after paying his creditors in full, he returned to become editor of the *New Monthly Magazine*. His last work was as editor of *Hood's Monthly Magazine*. He died in London, May 3, 1845.

Hood's work is characterised by its unique combination of pathos and humour, as in *Fat-hless Nelly Gray* and *Miss Kilmansegg*, and he is specially remembered for his *Song of the Shirt*, *The Bridge of Sighs*, and *Eugene Aram*. He wrote *Up the Rhine* and a novel *Tynley Hall*.

Hood Tom. English humorist. A son of Thomas Hood, he was born at Wanstead, Jan. 19, 1835, and was educated at Pembroke College, Oxford. He was for a time a clerk in the War Office, but later took to journalism. In 1865 he was made editor of *Fun*, and he died Nov. 20, 1874.

Hood Viscount. English sailor. The son of a clergyman, Samuel Hood was born in Dorset, Dec. 12, 1724, and entered the navy in 1741. He served in the war of 1756-63 and from 1767-1771 was commander-in-chief

in N. America. After a second spell of service in American waters he was made commander-in-chief in the Mediterranean, and took part in the blockade of Toulon. He was an M.P. for a few years, defeating Charles J. Fox at the Westminster election of 1784. In 1782 he was made an Irish baron, and in 1796 a viscount. In Jan. 27, 1816, he died. The title is still held by his descendants.

Hood's brother Alexander saw much service in the navy and was made Viscount Bridport in 1800. A kinsman, Samuel Hood, entered the navy in 1776, was at the Battle of the Nile and rose to high command. He was made a baronet and died Dec. 24, 1814.

Horace Lambert Alexander Hood, a son of the 4th Viscount Hood, became head of the naval college at Osborne in 1910. In 1914 he took command of a ship and in the Battle of Jutland he went down in the *Inflexible* when in command of a squadron of battle cruisers, May 31, 1916.

Hooge Village of Belgium. It is 3 m. from Ypres and around it there was much fighting during the Great War. In May, 1915, the Germans delivered here one of their earliest gas attacks, and here on July 30 they used liquid fire from flame throwers for the first time. The village, or what remained of it, was retaken by the British on July 31, 1917, and the Germans driven away in Sept., 1918. Hooge has been rebuilt, and in it is a memorial to the Gloucestershire Regiment.

Hoogly Branch of the Ganges. One of the branches by which that river flows into the sea in the Bay of Bengal, it is 120 m. long. Calcutta stands on it. Owing to quicksands the navigation is dangerous. In 1931 a tunnel under the river was opened.

Hoogly is also the name of a town of Bengal, founded in 1537 by the Portuguese. Pop. 30,000.

Hook Theodore Edward. English writer. Born in London, Sept. 22, 1788, a son of James Hook, the composer, he was educated at Harrow. His extraordinary gifts as an improviser soon won for him a great reputation. In 1820 he started a Tory paper called *John Bull* and wrote a number of novels, including *Marvell* and *Jack Iran*, but is better known as the author of innumerable practical jokes. He died at Fulham, Aug. 24, 1841.

Hookah Tobacco pipe used in India, Persia and other Eastern countries. It consists of a tobacco bowl from which the smoke passes through into a water bottle of glass, porcelain or metal, and thence by a long flexible tube to the mouth. In this way the smoke is cooled.

Hooker Sir Joseph Dalton. English botanist. Born at Halesworth, Suffolk, June 30, 1817, he was the son of Sir William Jackson Hooker, who was Professor of Botany at Glasgow and then Director of the Botanic Gardens at Kew. He studied medicine in Glasgow, but never practised. Instead, he went with Sir James Ross to the Antarctic in 1839, and in 1845, as botanist to the Geological Survey, did much research work in the Himalayas. In 1855 he was made assistant director at Kew, and in 1865 he succeeded his father as director. He retired in 1885 and died Dec. 10, 1911. Hooker was president of the Royal Society, 1872-77, and was given the O.M. in 1907. He wrote books on the results of his journeys and a valuable *Genera Plantarum*.

Hooker Richard. English divine. Born in March, 1554, he was sent to

Corpus Christi College, Oxford, and became a clergyman in 1581. In 1584 he was given a living in Buckinghamshire, and in 1585 was made Master of the Temple. He left London in 1591 to become Vicar of Boscombe in Wiltshire. His last living was at Bishopbourne, Kent, where he died Nov. 24, 1606.

Hooker is famous as the author of a unique *Treatise on the Laws of Ecclesiastical Polity*, which sets out the fundamental principles of Protestantism and especially of the Church of England. Equally remarkable for its stately prose and for its irresistible logic, it won for its author the epithet "judicious." Isaac Walton wrote a *Life of Hooker*.

Hook of Holland Steamer and railway terminus of the Netherlands. It is 17 m. from Rotterdam and stands at the mouth of the channel called the New Waterway. There is a regular steamer service with Harwich, 120 m. away.

Hookworm Parasite causing ankylostomiasis in man. It is common in many tropical countries where the larva, entering the system by piercing the skin, commonly the foot, matures in the small intestine. Ova voided in the excreta infect the soil. Effective treatment can only be carried out on a large scale, and includes proper sanitation and the use of vermifuges.

Hooley Ernest Terah. English financier. Born in Nottingham, Feb. 5, 1859, he became a stockbroker's clerk, then a stockbroker, and was concerned in floating companies at a time when this kind of business was in its infancy. He placed some very large undertakings on the market, and for a time was remarkably successful, but a sensational crash came with his bankruptcy in 1898.

Hooper John. English prelate. Born in Somerset about 1495, he went to Oxford and became a Cistercian monk. Later he joined the religious reformers and in 1539 went to Switzerland. Returning about the time of the accession of Edward VI, he was made chaplain to the Protector, the Duke of Somerset, and in 1550 was elected Bishop of Gloucester. He held also the bishopric of Worcester from 1552 until 1553, when Mary had him put into prison. On Feb. 9, 1555, having been condemned for heresy, he was burned at Gloucester.

Hoopoe Genus of birds allied to the hornbills (*Urocapa*). It visits Europe and Siberia in summer and winters in Africa and India. Occasionally it breeds in England. Its golden-buff head and neck bear a semi-circular crest of erect plumes with white-bordered black tips.

Hoover Herbert Clark. American president. Born, Aug. 10, 1874, at West Branch, Iowa, the son of a Quaker, he was educated at the Leland Stanford University. He became an engineer and was for a time engaged in mining work in Australia, China and elsewhere. He attained a high standing in his profession and became a public figure during the war period. In 1914 he was in charge of the American relief work in Europe; later, he organized relief measures on a much greater scale in the countries threatened with famine. This work occupied him until 1921, when he was a member of the Supreme Economic Council. A Republican, Hoover was Secretary of Commerce, 1921-25, and in 1928 was elected President, defeating the Democrat, Al Smith. In July, 1931, he launched his scheme for a year's moratorium for all inter-

national war debts. He stood for re-election as Republican candidate in 1932.

Hope Anthony. Pen-name of the English novelist, Sir Anthony Hope Hawkins. A son of Rev. E. C. Hawkins, he was born in London, Feb. 9, 1863, and was educated at Marlborough and Balliol College, Oxford. He became a barrister, but devoted his time to writing. In 1894 he made his name with *The Prisoner of Zenda*, a novel of the romantic type, which called forth many imitations. The sequel, *Rupert of Hentzau*, and many others in the same vein followed, these including *Quisante*, *Tristram of Blent*, *Sophy of Kravonia*, *The Intrusions of Peggy and Captain Dieppe*. Hope secured another success with his *Dolly Dialogues*, full of delicate wit. He also wrote plays, among them *The Adventures of Lady Ursula* and *Pilkerton's Peerage*. In 1918 he was knighted.

Hope Sir John. British soldier. Born Aug. 17, 1765, he was a son of the 2nd Earl of Hopetoun. In 1790 he entered the army and about 1795 embarked on a long career of active service. He was in the Netherlands and Egypt with Sir Ralph Abercrombie, and in Sweden and Portugal with Sir John Moore, taking command at Corunna when his leader was killed. He commanded a division in the Walcheren expedition and in 1813 went to Spain as chief lieutenant to Wellington. There he led a division until wounded and made prisoner in April, 1814. In 1815 Hope was made a baron and in 1816 he became Earl of Hopetoun. He died Aug. 27, 1823.

Hope. Town of Flintshire. On the River Allen, it is connected with Chester by the L.M.S. Rly., and is 188 m. from London. Offa's Dyke passes near and Roman remains have been unearthed. Pop. 4800.

Hopetoun Earl of. Scottish title now merged in that of Marquess of Linlithgow. Thomas Hope, a lawyer, was made a baronet in 1628 and one of his descendants, Charles, was made an earl in 1703, taking his title from his residence, Hopetoun House, Linlithgowshire. James, the 3rd earl, inherited the estates of the Marquess of Annandale. He was succeeded in 1816 by his half-brother, Sir John Hope (q.v.). In 1902 the 7th earl was made Marquess of Linlithgow. Hopetoun House stands in a fine park near the Forth.

Hopper. Funnel-shaped wooden or metal vessel, through which loose material is discharged into a receptacle. The lower aperture is often provided with a trap door.

The term is applied also to the vat used in making an infusion of hops in a brewery.

Several insects are called **hoppers**. One of these is the hop flea which is very destructive to hops; another is the larva of the chouse fly.

Hoppner John. English portrait painter. Born in Whitechapel, London, April 4, 1758, of German parentage, he studied at the Royal Academy Schools and became a fashionable portrait painter. His portraits of women and children have a certain charm. The "Countess of Oxford" and "William Smith" are good examples of his work in the National Gallery, London, but his best works are in private collections. In 1792 he was elected A.R.A. and in 1795 R.A. He died in London, Jan. 23, 1810.

Hops Cone-like catkins of female flowers of the hop plant *Humulus lupulus*. They are used chiefly for giving the charac-

teristic flavour to beer. The plant is a perennial climbing herb with rough twining stems bearing either male flowers in drooping clusters or female flowers in green scaly cones. After flowering the female catkins, or hops, increase in size and develop at the bases of the scales small yellowish glands which contain the special principle of hops. Hops are used to some extent in medicine. The plant was introduced into England from Flanders in 1525.

In England hops are grown chiefly in Kent, but also in the counties of Hereford, Sussex, Worcester and Hampshire. A considerable outlay and much skilled labour are necessary before the hops are ready for picking. The chief English market is the Hop Exchange in Southwark, London, S.E.

Hor Mountain near Edom's border whereon Aaron died (Nu. xx.). It has been associated since Josephus with Jebel Harun, a truncated cone, 4580 ft. high, between the Dead Sea and the Gulf of Akabah.

Horace Latin poet. Quintus Horatius Flaccus was born at Venusia, Dec. 8, 65 B.C., the son of a freedman who had acquired some wealth. He was educated at Rome and in Athens, and fought on the side of Brutus in the war that followed the murder of Caesar. He then entered the public service. About 38 B.C. Virgil introduced him to Maecenas, who gave him a farm on the Sabine Hills and there, or in Rome, the rest of his days were passed in writing. He died in Rome, Nov. 27, 8 B.C.

The first works of Horace were two volumes of *Satires*. These were followed by some *Epodes* and then came, in three books, his immortal *Odes*, the most perfect of their kind, yielding almost as many quotations as *Hamlet*. A fourth book followed. He also wrote some *Epistles* and the *Carmina Secularia*. There are many English translations of his works, especially of the *Odes*.

Horae Greek word meaning hours and used for the goddesses of the seasons. The daughters of Zeus and Themis, they were responsible for controlling the weather and so helping the fertility of the soil. They were represented in art as beautiful maidens and temples in their honour were built at Athens and elsewhere.

Horatii Name given to three Roman heroes. They were triplets and were selected to fight three brothers from Alba. The fight took place and all were killed except one of the Horatii. On his return, his sister, whose lover had been among the slain, cursed him and he killed her.

Horatius Cocles, another Roman hero, belonged to this family. He defended, with two others, the bridge across the Tiber when the city was attacked by Lars Porsena, as related in Macaulay's *Lays of Ancient Rome*.

Horder Sir Thomas Jeeves. English physician. Born Jan. 7, 1871, he received his medical training at St. Bartholomew's Hospital, London. He joined the staff there and soon became known as a consultant, his patients including members of the royal family. He served at the front in the Great War, was knighted in 1918 and in 1923 was made a baronet.

Horeb In the Pentateuch an alternative name for Sinai (Ex. iii.). It was the scene of Moses' experience of the burning bush, the giving of the Law, and Elijah's vision.

Horehound Name of two plants found in Great Britain and elsewhere in the temperate zones. The white

horehound has stems and leaves covered with down and bears whorls of white flowers in the summer. The black horehound has also downy and wrinkled leaves, but its flowers are purple. The white horehound has an aromatic flavour and a decoction from its leaves is used as a medicine, chiefly as a cure for coughs.

Horley Market town of Surrey. It is on the Mole, 25 m. from London and 5 m. from Reigate, on the S. Rly. Pop. 6100.

Hormones "Chemical messengers," substances formed in the organs of internal secretion, such as the thyroid and pituitary glands, and passed on into the blood circulation. These substances stimulate the metabolism of other organs, generally by increasing secretion. The activity of the thyroid has an effect upon physical and mental growth, and the pituitary upon growth in stature.

Horn Hard, pointed sheath formed over a bony core on the frontal bone of the skull of oxen, sheep and antelopes. In the case of the rhinoceros the horn consists of an agglutinated mass of horny fibres derived from the skin. The antlers of deer are not true horns, but bony outgrowths of the skull.

Horn is used for making handles of knives and forks, sticks and umbrellas, also combs, buttons, etc. It is exported from India, South Africa and South America.

Formerly many implements made of horn were called horns. These included drinking-horns, hunting-horns and powder-horns; later came ink-horns. There exist some fine old specimens of these horns.

Horn Cape of South America. On Tierra del Fuego, it is the most southerly part of the continent. It belongs to Chile and is about 1400 ft. high. It was seen by Drake in 1578, but was named by a Dutch sailor who called it Hoorn, from his birthplace.

Horn Brass musical wind instrument. At one time horns were much used for military and hunting purposes, only the wald-horn surviving as an orchestral instrument. About 1835 this was superseded by the valve horn in F, which is now universally employed. Its practical compass is about three octaves.

The player blows into a conical, coiled tube, twelve feet long, producing tenor tone quality. Pistons effect a change of key. Music for valve horns in F is written a perfect fifth higher than actually sounded.

Hornbeam Tree of the birch order (*Carpinus betulus*). It is indigenous to Europe and W. Asia and grows in Great Britain. Its dull, doubly-toothed leaves, hairy underneath, and winged fruit, distinguish it from the beech. Its heavy, close-grained wood is difficult to split and serves for mallets, handles, lasts, bench screws and cog wheels. In Great Britain it sometimes grows to a height of 70 ft.

Hornbill Family of fruit-eating birds allied to the hoopoes. They inhabit Africa, India and Malaya and have horn-like helmets, hollow or solid, surmounting large bills. There are ground hornbills, trumpeters and wedge-tailed forms. They may be as much as 15 in. in length.

Hornblende Rock-forming mineral of the amphibole group. It consists of the silicates of magnesia, lime, iron and alumina, and is found as grains or crystals in syenites, diorites and schists in many parts of the world. Hornblende is black or greenish-

black in colour and opaque except in the translucent variety, pargasite.

Hornbook Tablet used for teaching children, especially in England, from about 1450 till about the middle of the 18th century. Usually bearing the alphabet in capital and small letters, the nine numerals and the Lord's Prayer, it was covered with transparent horn and had a handle.

Horncastle Market town and urban district of Lincolnshire. It is 21 m. from Lincoln, on the L.M.S. Rly. The town is an agricultural centre and is famous for its horse fair held every August. Pop. (1931) 3496.

Hornchurch Urban district of Essex. It is 2 m. from Romford, on the L.M.S. Rly. The industries include the making of agricultural implements and brewing. Pop. (1931) 28,417.

Horne Baron. British soldier. Born in Caithness, Feb. 19, 1861, Henry Sinclair Horne was educated at Harrow and passed into the Royal Artillery. As an artillery officer he served in S. Africa, and in Aug., 1914, he went to France in command of a brigade of artillery; in 1915 he was given a division and in 1916 he took command of an army corps, which he led in the Battle of the Somme. In 1916 he was appointed to command the first army which he led throughout the advance of 1918. In 1919 he became Baron Horne of Sirkeoke, Caithness. The title became extinct when he died, Aug. 14, 1929.

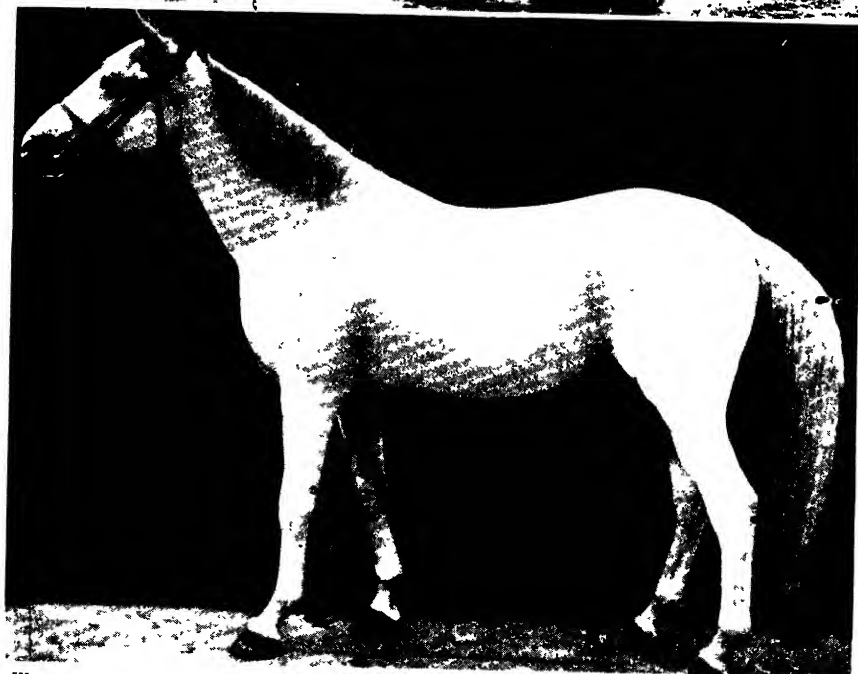
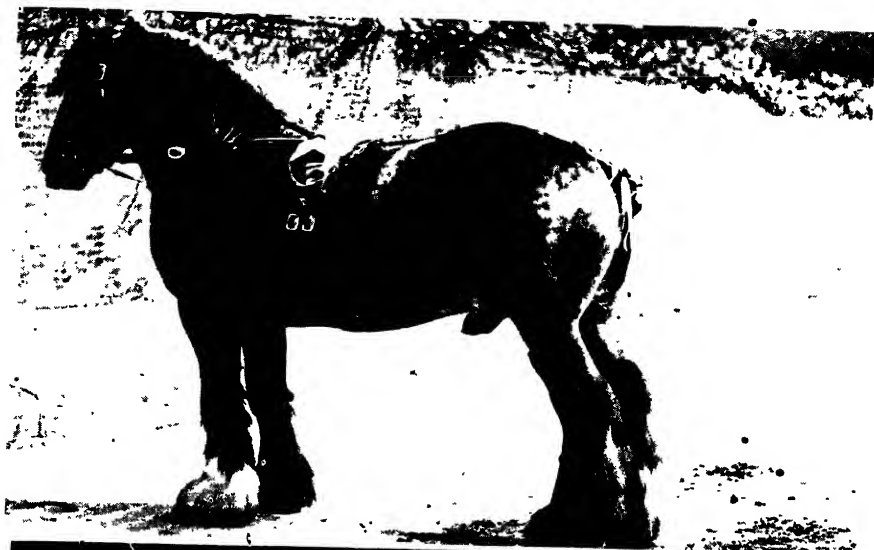
Horne Sir Robert Stevenson. British politician. The son of a minister of the Church of Scotland, he was born Feb. 23, 1871, and educated in Edinburgh and at Glasgow University. In 1895 he was made lecturer in philosophy at University College, Bangor, but later became an advocate in Edinburgh. In 1917 he was given an administrative position in connection with the transport of troops. He then went to the Admiralty as director of a department and later was made Third Civil Lord. In 1918, having been knighted, he entered Parliament as Conservative M.P. for the Hillhead division of Glasgow (which he still represented in 1932) and was made Minister of Labour. In 1920 he became President of the Local Government Board and in 1921 Chancellor of the Exchequer, leaving office when the coalition broke up in 1922. In business he became associated with several railway, banking and other companies.

Horner One who sells horns of various kinds, a trade now extinct. The **Horners' Company**, however, one of the London livery companies, still exists. Its hall is in Cannon St., London, E.C.

Hornet British variety of wasp (*vespa crabro*). About an inch long and distinguished from the common wasp by its ruddier hue, it builds papery nests, chiefly of rotten wood, in hollow trees, or pendent from outhouse roofs. The hornet is found chiefly in the midland and southern counties of England.

Horning Term used in Scots law. It is a writ used in cases of debt and is so named because at one time debtors who did not pay were declared outlaws after three blasts had been blown on a horn at the market cross in Edinburgh.

Hornsea Urban district and watering place of Yorkshire (E.R.). It is about 16 m. from Hull, on the coast between Spurn Point and Flamborough Head, on the



THOROUGHBRED HORSES.—“Blacklands King-maker,” a noted Shire stallion valued at 1700 guineas; and *below*, an eight-year-old Arab stallion, present head of the Koheilan family with a long and celebrated pedigree.

[J. T. Newman; F.N.A.]

L.N.E. Rly. Near is **Hornsea Mere**, a lake covering about 400 acres. Pop. (1931) 4150.

Hornsey Borough of Middlesex. *It is 4 m. from London, but outside the county, and includes the districts of Harringay, Crouch End, Muswell Hill and Finsbury Park. It became a borough in 1903. In olden times there was a royal park which is mentioned by Shakespeare in *Henry VI*. Pop. (1931) 95,524.

Horns Reef Reef off the coast of Jutland. Near here the Battle of Jutland was fought, May 31, 1916. See JUTLAND.

Horology Science dealing with the principles and construction of timepieces. Wheel clocks came into use about the 12th century, portable clocks in the 14th, and watches with a coiled spring a century later. The introduction of the pendulum in the 17th century, followed by the first escapement, was an important step and since that time steady progress has been made.

Horse Hoofed mammal (*equus caballus*) of great value to man, especially the white races. It is distinguished by having only one toe on each foot, and is seen in shades of red, brown, black, white and piebald. Its height is measured in hands.

The horse was hunted for food by primitive man, was known to the Egyptians and Assyrians, and by the time it was mentioned in the Bible it had been domesticated. The Arabs showed what it was capable of in speed and beauty, and in these respects Arab horses have never been surpassed. The Roman chariot was drawn by horses and later the horse became an essential part of the knight's equipment. Until the Great War the horse played an important part in warfare.

When the roads were bad goods were conveyed on pack horses and, when they became better, horses were used to draw coaches and carts over them. In agricultural work horses replaced oxen in many countries, while every gentleman, as a matter of necessity, learned to ride and made his journeys on horseback.

The invention of the steam engine reduced somewhat the demand for horses, still more the advent of the motor car. To-day, even on farms, much of the work formerly done by horses is done by motor.

The finest animal in existence is probably the English thoroughbred racehorse, in which there is an Arab strain. For hunting, horses are carefully bred and good specimens fetch high prices. For agricultural and draught purposes the chief breeds are the Shire, Clydesdale and Suffolk Punch, and for riding and driving, the Hackney and Cleveland.

In former days horse fairs were held in many centres, those of Ireland being especially famous, and these are not yet extinct; annually in August a great horse show is held in Dublin. For breeding horses there are stud farms, while the breeding of racehorses is conducted in special establishments.

Wild horses are still found in Asia. The mustang of South America is the wild descendant of the domesticated horse. The skin, hair and other parts of the horse are commercially valuable. There are restrictions on the export of old horses, and homes of rest are provided for them.

Horse Chestnut Genus of large trees of the soapwort order (*Aesculus*). They are natives of Europe, India and N. America. The common *A. hip-*

popcastanum bears pyramidal spikes of showy blossoms. It grows to a height of 60 ft. The seeds produced much acetone and alcohol during the Great War. The Indian form (*A. indica*) furnishes timber. It grows to a height of 100 ft.

Horse Fly Name loosely indicating two-winged insects of various families, annoying to horses. (1) The large brownish-black *Tabanus bovinus*, and other blood-sucking species of the gadfly family. (2) The parasitic yellowish-brown *Hippoboscus equina*, or horse tick, which is common in the New Forest, England. See BOT FLY.

Horse Guards Building in Whitehall, London; also the name of a cavalry regiment. The Whitehall structure was built in the 18th century and was at one time the headquarters of the army. It is still used for military purposes. Behind it is the Horse Guards Parade, where the trooping of the colours takes place.

The Royal Horse Guards is one of the regiments of household cavalry. It was formed in 1661 and saw much service in the 18th and 19th centuries; also in the Great War. It is stationed in London and at Windsor and attends the sovereign on ceremonial occasions.

Horsehair Tail and mane hair of the horse. Long tail hair is woven into harkcloth and used for the seats of chairs. It is also plaited into fishing lines and used in violin bows. The mane and short tail hair serve as a stuffing for furniture, and for brushes.

Horse Latitudes Term used by sailors for regions about 30 deg. north and south of the equator. There the westerly winds blow towards the pole and the trade winds towards the equator.

Horse Leech Two aquatic species of blood-sucking leeches.

(1) The *Haemopsis sanguisuga* is common in Europe and N. Africa. It sometimes clings to the pharynx of horses and cattle when drinking from ponds or streams. (2) The *Aulastoma gulo* which is often confused with the leech. With three small teeth it normally feeds on earthworms, snails and other leeches.

Horse Mackerel Popular name for several unrelated marine fishes, particularly a spiny-finned genus (*Caranx*) abounding in almost all tropical and temperate seas. The British *C. trachurus* is also called the scad. Sometimes found in vast shoals, it is split, salted and dried for food.

Horse Power Standard or unit of work used to estimate the power of an engine. It is the force required to raise 33,000 lb. one foot in one minute, equivalent in electrical units to 746 watts. The French unit, "force de cheval," equals 736 watts or .9863 horse power.

Horse Racing Sport very popular in England, Ireland, Australia and France and to a lesser extent in other countries. It is an old sport and with it the English kings have been associated for some centuries. Race horses are specially bred and all are descended from Arab horses imported into England. Eclipse (1769-70) was the greatest racehorse on record and for good horses enormous prices are paid.

Racing in England is controlled by the Jockey Club and the chief centre is Newmarket. Other famous courses are Epsom and Doncaster, and there are many more all over the country.

Races are held at several parks around London, e.g., Kempton, Sandown and Hurst. Ascot and Goodwood are race meetings especially famous as social functions. In Ireland the chief racing centres are the Curragh and Leopardstown. In France races are held at Autouill and other places near Paris and in Australia at Sydney and elsewhere.

Training stables are at Newmarket, Epsom, Doncaster and on the Berkshire Downs. The five classic races are the Derby and Oaks at Epsom, the St. Leger at Doncaster, the Two Thousand Guineas and the One Thousand Guineas at Newmarket. These are for three-year-old horses. The courses vary from half a mile to two miles or a little more. In most races the horses are handicapped.

In addition to flat racing, hurdle or obstacle races are held at various centres. The chief of these is the Grand National. A feature of all horse races is the betting, through book-makers or by means of the totalisator, which has been made legal in Great Britain.

Horseradish Perennial herb of the cruciferous order (*Cochlearia armoracia*). Its pungent root serves grated as a condiment with beef and its oil is used as an antiscorbutic. It is propagated by planting pieces of the root in trenches and can be grown in Great Britain.

Horse Show Show of horses held in various cities and towns specially to promote the interests of the breeding industry. Prizes are given for the best animals. The International Horse Show is held every year at Olympia, London, but more famous is the one held at Dublin every August. Other shows are devoted to the interests of a single breed, e.g., Clydesdales or Shires.

Horsham Market town and urban district of Sussex. It is 38 m. from London, on the S. Ry. Its centre is called Carfax and here are stocks and the ring once used for bull baiting. The town has an agricultural trade. Pop. (1931) 13,579.

At West Horsham, about 2 m. away, are the fine modern buildings of Christ's Hospital.

A building material much used in Sussex houses is called Horsham stone.

Horsham Town of Victoria, Australia. A railway junction, it is about 200 m. from Melbourne, and is the principal town of a sheep farming area. It is on the Wimmera river and has irrigation works. Pop. 4700.

Horthy Nicholas. Hungarian leader. Born June 18, 1868, of a noble family, Nicholas Horthy de Nagybanya was educated for the navy, which he entered about 1884, and rose to command some cruisers during the Great War. He was given command of the Austro-Hungarian fleet in 1918 and made an admiral. During the troubles in Hungary that followed the War, he collected a force that drove the Bolshevik Bela Kun and his followers from the country and restored order. He was chosen regent in March, 1920, and held that position for the next 12 years.

Horticulture Scientific cultivation of fruit, vegetables, flowers and shrubs. In England it is fostered by the Royal Horticultural Society, which holds shows of flowers at its hall in Vincent Square, Westminster, has gardens at Wisley in Surrey and issues a *Journal*.

There are horticultural colleges at Swanley in Kent, Studely in Warwickshire, Ripley in Surrey, and elsewhere.

Horus Egyptian falcon-headed deity. Perhaps originally the totem of a falcon clan, he became a sun god, offspring of Osiris and Isis equivalent to the Greek Apollo. He is sometimes represented as a human child, the Greek Harpocrates, with finger or lips and seated on a lotus flower.

Horwich Urban district of Lancashire. It is 5 m. from Bolton, on the L.M.S. Ry. The industries include railway works, spinning mills, bleaching and dyeing works and coal mines. Pop. (1931) 55,680.

Hosanna Cry of adoration recorded in the account of Christ's entry into Jerusalem (Matthew xxi., 9) and later used in the Christian Church. It is also a Jewish liturgical term applied to the Hosanna branches used in the Feast of Tabernacles. The seventh day of the Feast of Tabernacles is Hosanna Day.

Hosea First of the twelve minor prophets in the Old Testament. A son of Beeri, a native of the northern kingdom of Israel, he prophesied under Jeroboam II. and his successors. The first part of the book he wrote (i.-iii.) professedly relates a personal experience and compares the nation's attitude towards Jehovah with that of a faithless spouse. The second (iv.-xiv.) exposes and censures Israel's idolatry and immorality. Our Lord cited Hosea's statement that God prefers mercy to sacrifice (Matthew ix.).

Hosiery Word derived from hose, a covering for the legs or feet and now used for knitted goods made of wool or partly of wool. It covers stockings, vests and other forms of underwear. In England the chief centres of the industry include Leicester, Nottingham and Ilkerton. In Scotland Hawick is a centre. Germany, the United States and other countries turn out large quantities of hosiery.

Hosiery is made by machinery. The first knitting machine, or frame, was invented by Rev. W. Lee of Calverton; near Nottingham.

Hospice Home of rest and refuge for travellers, maintained by religious houses. Such establishments were formed by monks on some Alpine passes for aiding pilgrims to and from Rome. That on the Great St. Bernard, founded in 962, is famed for its use of trained dogs to search for and rescue travellers overcome by the cold.

Hospital Building for the care of the sick and injured. In olden times it was used for almost any charitable institution. Some were homes for the aged, such as are still seen in Warwick, Hereford and other cities and towns; others were schools such as Christ's Hospital.

The Egyptians and the Greeks had hospitals in the modern sense, but their great development came with Christianity. In London, St. Bartholomew's dates from 1123. In the 19th century hospitals were built in all the large cities and towns. The largest are general hospitals, called in some places infirmaries; some are devoted to specific diseases. Other hospitals are for children or women, or for maternity cases; there are also dental hospitals and hospitals for incurables. Other hospitals such as those at Woolwich and Netley are maintained for the use of soldiers and sailors. In London the great hospitals, all with medical schools, are the London, St. Bartholomew's, St. Thomas's, Guy's, King's College, University College and St. George's.

In Great Britain the hospitals are supported by voluntary contributions. To assist those in London there is the King Edward VII.'s Hospital Fund and large sums are raised by the Hospital Saturday Fund and the Hospital Sunday Fund.

Hospitals have usually an indoor and outdoor department. No fees are charged in the majority of cases, although some have started the system of fees for those able to pay.

Hospitals for fever and other infectious diseases form a different class and are maintained by local authorities.

Hospitallers Name given to the knights of the Order of S. John of Jerusalem. It was founded in 1113 to manage a hospital, or hostel, for Christian pilgrims in Jerusalem. Some of its members took vows to defend the Holy Sepulchre, and soon it became the great rival of the other military order, the Knights Templars.

The order was strong and active during the crusading period, when it made Acre, called thereafter S. Jean d'Acre, its headquarters. In 1291 the knights made Cyprus their headquarters, and in 1530 they settled in Malta. As the Knights of Malta, they ruled over that island until 1798.

Host Wafer consecrated at the Mass in Roman Catholic worship. It is made of unleavened bread and after consecration is revered as the Blessed Sacrament.

Host In pathology a term applied to a plant or animal which is attacked by a parasite. In the case of endoparasites, the tapeworm and liver fluke, for example, there may be an alternation of hosts, the adult stage living in the primary host and the other stages of the life cycle in a secondary host.

Hostage Person retained as a pledge for the performance or non-performance of specific acts. The practice arose in connection with treaties and terms of surrender imposed on the vanquished. Romans took the sons of tributary princes as hostages and educated them. The last occasion between civilised states when a treaty was thus secured was at Aix-la-Chapelle in 1748.

Hostel Old name for an inn, surviving in the form of hostelry. It is used to-day for halls in connection with the newer English universities where students reside and also for residential institutions for nurses, social workers and young men and women in business life. The Hostel of God, at Clapham, houses the dying.

Hotbed Contrivance used by gardeners as an aid to the cultivation of plants. It consists of a heap of fermenting manure or other material, thus utilising the heat of fermentation for forcing plant growth.

Hotchkiss Benjamin Berkeley. American inventor. Born Oct. 1, 1826, he was employed in a gun factory when the Civil War was being fought. Among other inventions he was responsible for a machine gun called after him the Hotchkiss. It will fire automatically 400 rounds a minute, and is made in light and heavy forms. Hotchkiss died March 14, 1885.

Hotchpot Term used in English law. It means bringing property into a common fund to divide an estate at death. A man who has given money to one or two of his children during his lifetime may direct in his will that those sums are brought into

hotchpot, i.e., they are included in the share which those children will receive.

Hotel Word used for an inn or boarding house that claims to be of superior character. A variant of hostel, it came into use in the 19th century with the advent of railways. The hotels in London, New York, Paris and other capitals are large and imposing buildings with every convenience and luxury.

In Great Britain most hotels sell intoxicating liquor and must therefore be licensed. Many have restaurants where others than residents can obtain meals. Some, called commercial hotels, cater chiefly for business men.

In London, to look after hotel interests, there is a paper, *The Hotel Review*, and an association, the Hotel and Restaurant Proprietors' Association.

The *Hôtel Dieu*, a French institution, is a home for the old or infirm.

Hôtel de Ville French and Belgian equivalent for town hall, the German word being Rathaus. Some date from mediaeval times, as those at Orleans and Antwerp. That in Paris is modern.

Hothouse Glazed structure similar to a greenhouse, but provided with heating apparatus. In it may be grown tender plants naturally growing in warmer climates. Some plants like the palms require moist heat: cacti and other succulents require dry heat, while grapes, peaches, melons, etc., need a more temperate heat.

Hotspur Name given to Sir Henry Percy. A son of the 1st Earl of Northumberland, he led a revolt against Henry IV. and was killed in battle at Shrewsbury in 1403.

Hottentot Primitive people living in South Africa. With a negroid strain in them, they are also allied in blood to the Bantus and the Bushmen. They lived at one time in the north of the continent, but were driven south, where they settled. Their huts are shaped like beehives and they have their own religious rites in which the witch doctor figures. They number, perhaps, 60,000, but many of them, known as the Cape Hottentots, are half breeds.

Houdin Robert. French conjurer. The son of a clockmaker, he was born Dec. 6, 1805, at Blois, and baptised Jean Eugene Robert, but on his marriage took his wife's name of Houdin. In 1845 he opened a theatre of magic in Paris and there he gave some remarkable performances, as he did later in England and Germany. In 1856 the French government sent him to Algiers to counteract the influence of the native sorcerers, which his skill enabled him to do successfully. He died at Blois in 1871. Houdin wrote books which have been translated into English as *The Secrets of Conjuring and Magic* and *Carl Sharpling Exposed*.

Houdini Henry. American entertainer. Born in Wisconsin, April 6, 1873, he became a locksmith. His extraordinary skill in freeing himself from handcuffs, locks and other impediments soon led him to give exhibitions on the variety stage in London, New York and elsewhere. He died Oct. 31, 1926. In 1931 a book, called *Houdini's Escapes*, explained how some of his feats were performed.

Houghton Village of Norfolk. It is famous for its hall and its associations with the Walpoles. Sir Robert

Walpole, who was born here, built the enormous hall. Houghton is now the seat of the Earl of Rocksavage, but the pictures collected by Walpole have been sold. In the park is the village church, which contains the tombs of Walpole and his famous son, Horace.

Houghton **Baron.** English scholar and politician. Born in London, June 19, 1809, Richard Monckton Milnes was a son of Robert Pemberton Milnes, a Yorkshire landowner. While still at Cambridge he displayed distinct talents as a scholar and a wit. In 1837, having travelled in Europe, he entered Parliament as M.P. for Pontefract and remained a member until 1863, when he was made a peer. He married Annabel, daughter and heiress of Baron Crewe, and later his only son became Marquess of Crewe. Houghton died Aug. 11, 1885.

Dicky Milnes, as he was called, was one of the most popular men of the day, a champion of liberal ideas, and a friend of Tennyson, Carlyle and most of the great literary men of his day. He was the Mr. Vavasour of Disraeli's novel *Tancred*, and himself wrote several volumes and some graceful verse.

Houghton **William Stanley.** English dramatist. He was born in Manchester in 1881 and educated at the local grammar school. He entered business life, but at the same time served as dramatic critic for *The Manchester Guardian*. Then he began to write plays and his *Hindle Wakes*, 1912, a powerful study of Lancashire life, made him widely known. Others of his plays are *The Younger Generation*, *The Master of the House*, *Trust the People* and *The Perfect Cure*. He died Dec. 13, 1913.

Houghton-le-Spring **Urban district** of Durham. It is 6 m. from Durham and is a centre of the coal and iron industries. Pop. (1931) 10,492.

Hougoumont **Château** on the battlefield of Waterloo. With its grounds it was occupied by the British when the French opened the battle. It was defended by the Guards, and, in spite of desperate efforts, the French failed to take it.

Houndsditch **Street** in the city of London. It extends from Bishopsgate to Aldgate. At each end is a church dedicated to St. Botolph. A Jewish centre since the 16th century it is famous for its second-hand clothes shops. The name refers to the fact that the city ditch was here.

Hounslow **District** of Middlesex. It is 12 m. from London, on the G.W. & District Rlys. It is in the Heston and Isleworth urban district. There are many market gardens. **Hounslow Heath**, now only a fragment of its former size, is famous for its associations with highwaymen.

Hour **Measure** of time equal to sixty minutes, or the twenty-fourth part of a day. Hours are counted from midnight to the following noon, and from noon to the following midnight, but in the astronomical day the hours are counted up to 24 hours from noon to noon.

A book containing prayers for the different hours is called a **book of hours**. Some of these, prepared for royal personages and wonderfully illuminated, are beautiful and costly works of art. There are examples in the British Museum and other collections.

Houri **To Mohammedans** a black-eyed damsel of fadefless youth, health and beauty. She is promised in the Koran to the devout Moslem when he enters paradise. He may expect the companionship of many such nymphs as well as of his earthly wives.

House **Dwelling** of a permanent kind. Houses were at first very primitive structures. To-day they usually contain one or more living rooms for meals and daily life, with sleeping rooms on the upper storey or storeys. In the western world brick or stone are the materials chiefly used, but timber, or half timber houses are occasionally seen.

The older houses were dark and ill-ventilated: to-day much more attention is given to the supply of light and air. Houses are known as halls, villas, cottages, and so on. The money paid for the hire of a house is called rent.

A family is known as a house, so we have the house of York and the house of Windsor. The word is also used for an assembly such as the **House of Commons** and the **House of Representatives**. Business firms are called houses and some of them have their own papers called house journals. Steamship lines have their own flags called house flags. At Oxford, Christ Church is called "the House."

A **houseboat** is a kind of barge fitted up as a river residence.

House **Edward Mandell.** American politician. Born at Houston, Texas, July 26, 1858, he was educated at Newhaven and at Cornell University. Known as Colonel House, he became an influential figure in the political life of Texas, but never held office. In 1914, as an intimate friend of President Wilson, he was sent to Europe to collect information, and in 1917, when the United States entered the war, he represented his country in Paris. He attended the Peace Conference, but retired into private life after Wilson's death. In 1926-28 there appeared *The Intimate Papers of Colonel House*.

House Fly **Two-winged insect** of a subfamily including bluebottles or blowflies (*Musca domestica*). It has a sucking proboscis and walks on ceilings and windows by sucker-like feet. Its eggs produce in a day legless maggots which reach adult life in a month. It is a carrier of disease germs. The fly is found in all parts of the world.

Household **Nome** used for all the inmates of a house. It is used in a special sense for the king's or royal household, which includes, in addition to the royal family and the servants, the officials of the court such as the Lord Chamberlain.

The **Household Cavalry** is the name given to the regiments that have a special connection with the royal household. Formerly there were three of these regiments, but since the Great War there have only been two, the Royal Horse Guards and the Life Guards, the 1st and 2nd Life Guards having been amalgamated. During the Great War an infantry battalion was formed from reserve regiments of the Household Cavalry. The kings of France had their household troops until 1789.

House Leek **Genus** of succulent herbs or undershrubs of the stonecrop order (*Sempervivum*). They are natives of Europe, Asia and North Africa. The British hardy perennial, *S. tectorum*, frequently forms rosettes of fleshy leaves on cottage roofs and walls. It has spread to

America. Several species are cultivated in rockeries and others in greenhouses.

Housemaid's Knee Painful swelling of the pad or sac over the lower part of the knee cap. It arises usually from much kneeling on hard substances, but sometimes from rheumatism or gout. It is a chronic inflammation caused by fluid collecting in the sac or by thickened sac-walls. Rest is essential, with fomentations, blistering or tapping as a remedy.

Housing Provision of houses, especially in populous areas. The question of providing houses became acute early in the 19th century owing to the rapid increase in the population and the growth of new industrial areas; the growing interest of the masses in economic and political matters; the demand for higher standards of life and above all, the realisation that millions of men, women and children were living under conditions of filth, poverty and overcrowding.

In 1843 a royal commission inquired into the matter and laws were passed providing that new houses should be of a certain standard in respect of sanitation and the like, but private enterprise was regarded as equal to the task of providing them.

In 1884 another royal commission was appointed and as a result a measure passed in 1890 gave local authorities power to clear slum areas, to close insanitary dwellings and to erect new ones. But the housing of the people, as a whole, remained far from satisfactory. In 1909 another measure was passed which dealt also with town planning, but the Great War brought about a complete cessation of this work.

A new era in housing began in 1919 when an important Act was passed allowing the gift of public money to aid individuals to build houses, provided these came up to a certain standard and did not exceed a certain cost. In spite of the high cost of building materials a good deal was done. In 1923 another Act promised financial aid to local authorities undertaking housing schemes. Other measures followed, the amount of the housing grant being altered from time to time. Large housing estates were laid out by the London County Council and the corporations of Glasgow, Birmingham, Liverpool, Manchester and other large cities; slum areas were cleared and the standard of housing in Great Britain was raised.

In 1931 a measure was introduced to aid the building of houses in rural areas, where the conditions, although different, were in some ways as bad as those of the towns.

Housman Alfred Edward. English scholar and poet. Born March 26, 1859, he was educated at Bromsgrove School and St. John's College, Oxford. Professor of Latin in University College, London, from 1892, he was in 1911 made Fellow of Trinity and Professor of Latin at Cambridge. He has published two volumes of unique poetry, *The Shropshire Lad* (1896), a series of 53 ballad-like poems on country life, and *Last Poems* (1922), both marked by their flawless style, economy of diction, melody and unflinching realism. He has also edited some volumes of classical works.

Housman Laurence. English author and artist. Born July 18, 1865, he studied art and won a reputation by his book illustrations. In 1893 he published a book on William Blake. A great number of

volumes, both prose and verse, followed and he became known as a writer of graceful poetry and fanciful fiction. The best known of his books are *An Englishwoman's Love Letters*, published anonymously in 1900; *Bethlehem, a Nativity Play*; *Prunella, or Love in a Dutch Garden*; *Angels and Ministers*; *A Doorway in Fairyland*; *The New Child's Guide to Knowledge and The Heart of Peace*.

Houston City and port of Texas. It is in the S.E. of the state, 48 m. from Galveston, and is an important railway junction. There are many churches and schools, including the Rice Institute. Houston is a market for cotton, rice, sugar and other products and has engineering works and flour mills. By means of a ship canal, 50 m. long, the city has become a prosperous port, especially for cotton. Pop. (1930) 292,352.

Houston Samuel. American politician. Born in Virginia, March 2, 1793, he entered the army, but soon turned to politics, was elected to Congress and in 1827 was made Governor of Tennessee. Two years later he settled among the Cherokee Indians. In 1835, when Texas revolted against Mexico, he was chosen as the leader of the Texan army, and in April, 1836, he won a crushing victory. This made Texas independent and Houston was its president until 1845, when it was annexed by the United States, then represented it in the Senate. In 1859 he was appointed governor, but he was deposed in 1861 because he would not support the movement for secession. He died July 26, 1863.

Hova Name used for the inhabitants of Madagascar. They came probably from Malaya in the 15th century and in the 19th became the dominant people. They number 908,000, or about a quarter of the population, but their language is spoken by many more. The word means "freeman."

Hove Borough and watering place of Sussex. It is to the west of Brighton and 51 m. from London, on the S. Ry. The borough possesses a fine promenade and famous lawns, and here the Sussex Cricket Club has its grounds. The area of the borough was extended in 1928. Pop. (1931) 54,994.

Howard Noted English family. Its early members lived in Norfolk, where several became of importance. Sir Robert Howard married a daughter of Thomas Mowbray, Duke of Norfolk, and in 1183 his son, having inherited the Mowbray estates in Sussex and elsewhere, was made Duke of Norfolk. Since then this title has been held by the Howards: the Earl of Carlisle, Earl of Suffolk and Berkshire, Viscount Fitzalan, Lord Howard of Glossop and Lord Howard of Penrith, formerly Sir Esme Howard, British ambassador in Washington, also are members of this family. **Castle Howard**, in Yorkshire, is the seat of the Earl of Carlisle, who inherited the estates of the Dacres.

Howard Catherine. Wife of Henry VIII. A daughter of Lord Edmund Howard, who was a son of the 2nd Duke of Norfolk, she was born about 1522. On July 28, 1540, Henry married her secretly as his fifth wife. Almost at once she was accused of misconduct before her marriage, found guilty and on Feb. 13, 1542, beheaded.

Howard John. English philanthropist. Born in London, Sept. 2, 1726, he inherited an estate in Bedfordshire in 1742 and there lived the life of a country gentleman

In 1773, when high sheriff, he noticed the terrible condition of the prisons and of the prisoners, many of whom were innocent of crime, and entered upon the work for which he is famous. He visited prisons, not only in England, but in France, Germany and elsewhere and wrote *The State of the Prisons*, which drew public attention to the matter and led to considerable reforms. He died at Khorson, Jan. 20, 1790. A **Howard Society** has been formed to carry on his work.

Howard de Walden Baron, English title dating from 1597. The 1st baron was Lord Thomas Howard, afterwards Earl of Suffolk, a son of the 11th Duke of Norfolk. From 1688 until 1784 the title remained in abeyance and in 1797 it passed to the Earl of Bristol, a descendant of the 1st lord, thence, in 1803, to Charles Augustus Ellis, a diplomat. Ellis married a daughter of the 3rd Duke of Portland, whose valuable London property, inherited from her brother, the 4th duke, passed to her son and then to her grandson. The latter, Thomas Evelyn Scott-Ellis, who succeeded in 1899, is known for his interest in art and music. He is also Baron Seaford and his London residence is Seaford House.

Howard of Effingham, Baron. English title borne by the family of Howard. The 1st baron was William Howard, a son of the Duke of Norfolk. He was born about 1510 and served Henry VIII. and his three children. He was Lord High Admiral, 1554-73, and Lord Chamberlain under Elizabeth. He died Jan. 12, 1573. His son, Charles, the 2nd baron, also Lord High Admiral, was born in 1536 and led the fleet that defeated the Spanish Armada. He was created Earl of Nottingham in 1596 and died Dec. 14, 1624.

Howden Market town of Yorkshire (E.R.). It is 21 m. from Hull, on the L.N.E. Rly. There is an aerodrome here. Roger of Howden, who wrote a chronicle of English history from 732 to 1201, was born here. Pop. 2050.

Howe Earl. English title borne in turn by the families of Howe and Curzon. The 1st earl was the famous seaman, Richard Howe, who was made an earl in 1788. He left no sons. A daughter married Assheton Curzon and their son inherited from his paternal grandfather the title of Viscount Curzon and in 1821 was made Earl Howe. Richard Curzon-Howe, the 4th earl (1861-1929), was succeeded by his son Francis. When Viscount Curzon, the latter was a Unionist M.P., 1918-29, and famous as a racing motorist. The earls owned land in Buckinghamshire and Leicestershire, but much has been sold. The earl's eldest son is known as Viscount Curzon.

Howe Earl. English sailor. Richard Howe, a younger son of the 2nd Viscount Howe, was born in London, March 8, 1726. Entering the navy he made a reputation during the Seven Years' War, notably in Quiberon Bay, and in 1778-80 he was in command of a fleet that operated against the French off the North American coast. In 1782 Howe relieved Gibraltar and in 1794 he gained a great victory over the French on the Glorious First of June.

Between his spells of active service he was Treasurer of the Navy and First Lord of the Admiralty. In 1758, on his brother's death, he became an Irish viscount. In 1782 he was made an English viscount and in 1788 an earl.

In 1797 he suppressed the mutiny at Spithead and he died Aug. 5, 1799.

Howells William Dean. American novelist. Born in Ohio, March 1, 1837, he was the son of a printer. While working in his father's office he began to write for the press and also published a *Life of Lincoln*. From 1861-65 he was consul in Venice; from 1872 to 1881, editor of *The Atlantic Monthly*; from 1886 to 1891, editor of *Harper's Magazine*. He died May 11, 1920.

Howells wrote a great number of novels dealing in a realistic way with American life. They include *Their Wedding Journey*, *The Undiscovered Country*, *An Indian Summer*, *The World of Chance* and *The Landlord of the Lion's Head*. He also wrote short stories, poems and a volume called *Venetian Life*.

Howitt William. English writer. The son of a farmer, he was born at Heanor, Derbyshire, Dec. 18, 1792, and educated at Ackworth, Yorkshire, in a Quaker school. He was apprenticed to a builder, then became a chemist. Later he spent some time in travelling, visiting Australia, in 1852-54. He became a spiritualist and died in Rome, March 3, 1879. Howitt's works include *The Boy's Country Book*, *Rural Life in England* and *An Illustrated History of England*.

Howitt's wife, Mary Botham, a Quakeress from Utttoxeter, whom he married in 1831, also wrote a good deal, her *Tales for Children* being extremely popular. The two collaborated to write *The Book of the Seasons* and several others. Mary Howitt joined the Church of Rome and died in Rome, Jan. 30, 1888.

Howitzer Form of cannon adapted for discharging shells or heavy projectiles. It has a short barrel, a large bore, low muzzle velocity and high trajectory, and is used for firing over earthworks or other obstacles, and for the destruction of buildings.

Howth Watering place and urban district in Co. Dublin. It is to the north of Dublin, on Dublin Bay, with a station on the G.N. (Ireland) Rly. The Hill of Howth, over 550 ft. high, is a prominent landmark. Pop. 4000.

Hoxton District of London. In the N.-E. of the city, it is in the borough of Shoreditch. It includes De Beauvoir Town. The chief industry is cabinet making.

Hoy One of the Orkney Islands. It covers 53 sq. m. There is a harbour on the south coast called Long Hope. Natural features are the pillar rock called the Old Man of Hoy and the Dwarfie Stone, mentioned by Scott in *The Pirate*. Ward Hill, 1560 ft. high, is of interest to botanists.

Hoylake Watering place of Cheshire. On the Irish Sea, 9 m. from Birkenhead, on the L.M.S. Rly., it is noted for its golf links. It forms part of the urban district of Hoylake and W. Kirby. Pop. (1931) 16,628.

Hubert Frankish saint, the patron of huntmen. He was born in 652 of noble family. The story goes that when hunting he met a stag bearing a cross between its horns. This converted him and he became a monk. Later he was made a bishop and, having preached Christianity in the district of the Ardennes, he died in 727. His feast is observed on Nov. 3.

Huckleberry Fruit of several small shrubs indigenous to N. America. They resemble whortleberries and

cranberries. The most esteemed is the common black huckleberry, *Gaylussacia resinosa*.

Hucknall Torkard Urban district and market-town of Nottinghamshire. It is 132 m. from London by the L.M.S. and L.N.E. Ryrs., and 8 m. from Nottingham. The chief building is the church of S. Mary Magdalene, containing the tomb of Lord Byron, who lived at Newstead Abbey. There are hosiery works and collieries. Here is an aerodrome. Pop. (1931) 17,338.

Huddersfield County, borough and market town of Yorkshire (W.R.). It stands on the Colne, 199 m. from London and 16 from Leeds, and is served by the L.M.S. Ry. and by canals. The making of woollen goods is the principal industry; there are also dyeworks, cotton mills and engineering works. Huddersfield has an important association football club, which won the Association Cup in 1922, and reached the final in 1928 and again in 1930. Pop. (1931) 113,467.

Hudson River of the United States. It rises in the Adirondack Mountains and flows through the state of New York to the Atlantic in New York Bay. The Mohawk is one of its tributaries, and Albany is the chief town. Towards its mouth the Hudson flows between New York and New Jersey, and on both sides are wharves and docks for steamers. It is crossed by tunnels and ferries which connect New York with Hoboken and other places in New Jersey.

The Hudson, which is navigable for 150 m., is connected by canal with Lake Erie and Lake Champlain. It is named after Henry Hudson, and its valley, now traversed by a main railway line, was the chief trading route between New York and Canada. It was important, too, during the War of American Independence.

Hudson Henry. English seaman. He was born in Queen Elizabeth's reign and made several voyages. On the third voyage he explored the Hudson River. In 1610, in the *Discoverie*, he reached Greenland and entered Hudson Bay. During the winter the crew mutinied owing to want of food; Hudson was put in a small boat with eight companions and set adrift (June 23, 1611), and nothing more was heard of him.

Hudson Bay Sea of Canada. It covers 567,000 sq. m. and is 1300 m. long and 600 broad. Several channels connect it with the Arctic Ocean and Hudson Strait with the Atlantic. Its southern part is called James Bay. It receives many Canadian rivers including the Churchill, Nelson, Rupert, Albany and Severn. During a good part of the year its navigation is impeded by ice. Churchill and Nelson are the chief ports.

Hudson's Bay Company

Trading company in Canada. It dates from 1670 when Charles II. gave a charter to Prince Rupert and others, bestowing upon them the lands around Hudson Strait and the sole trading rights therein. They formed the Hudson Bay Company which for 200 years owned vast tracts of land in the N.W. of Canada. Posts or trading stations were built and a trade in furs was carried on with the Indians. In 1749 the company's land was defined as all that was watered by the streams flowing into Hudson Bay. In 1821 it was united with a rival company and received a new charter. By this the company secured the sole right of trading with the Indians in

British Columbia. The area under its control was about 2,300,000 sq. m.

In 1869 the new Dominion of Canada decided to take over the vast area of land owned by the company. Terms were arranged and the company retained some 18,000,000 acres, and received a sum of money. It then became a limited liability company. Its business consists chiefly of collecting furs. Its headquarters are in London and it has large stores at Winnipeg and elsewhere.

Huggins Sir William. English astronomer. Born Feb. 7, 1821, in 1855 he built an observatory at Tulse Hill, London, and there did most valuable work. He was the founder of the science of astrophysics and his discoveries about the spectra and the physical qualities of the nebulae were of the highest importance. His wife, Margaret Lindsay Murray, helped in this work. Huggins, who died May 10, 1910, was President of the Royal Astronomical Society, 1876-78; of the British Association, 1891; and of the Royal Society, 1900-05. Made a K.C.B. in 1897, he was given the Order of Merit in 1902. Lady Huggins died March 24, 1915.

Hugglescote Town of Leicestershire. It is a mining centre, 66 m. from Ashby de la Zouche and, 113 from London, on the L.M.S. Ry. Pop. 5600.

Hugh English saint. Born about 1135 at Avalon in France, he became a monk. He crossed over to England and was made head of a Carthusian monastery in Somerset. In 1186 he was made Bishop of Lincoln and he died Nov. 16, 1200. He was canonised in 1220 and his day is Nov. 17. Hugh is remembered in English history for his refusal to send knights to serve Richard I. abroad.

Hughenden Village of Buckinghamshire. It is 2 m. from High Wycombe. Disraeli lived and died here. He bought the estate in 1848 and on his death it passed to his nephew, Coningsby Disraeli.

Hughes Charles Evans. American politician. Born April 11, 1862, the son of a Baptist minister, he was educated for the Law and began to practise in New York. From 1891-93 he was Professor of Law at Cornell University. In 1907 he was chosen Governor of New York, and three years later was made a judge. A candidate for the Presidency in 1916, he was beaten by Wilson. From 1921-25 he was Secretary of State under Harding and presided over the Armaments Conference at Washington in 1921. He became Chief Justice in 1930.

Hughes David Edward. English inventor. Born in London, May 16, 1831, he went to the United States as a boy. Educated in Virginia he was for a few years Professor of Music and then of Natural Philosophy at a college in Kentucky. In 1855 he invented a type printing telegraph which was taken up in most of the countries of Europe. His later inventions included the microphone and the induction balance. He died Jan. 22, 1900, and in May, 1931, the centenary of his birth was celebrated.

Hughes Hugh Price. British preacher. Born at Carmarthen, Feb. 8, 1847, the son of a doctor, he took his M.A. degree at London University. Later he entered the Wesleyan ministry, where his almost boundless energy and preaching power quickly made him prominent. In 1887 he started the

W. London Mission in S. James's Hall, Piccadilly, where he preached to great audiences. He travelled over the country speaking on temperance and other causes. In 1885 he founded the *Methodist Times*, which he edited until his death, Nov. 17, 1902.

Hughes Richard. English writer. Born in 1900, he was educated at Charterhouse and Oxford. In 1922 his first play, *The Sisters' Tragedy*, was produced. He also wrote *A Comedy of Good and Evil*, several plays for broadcasting purposes, and many poems. In 1929 his successful novel, *A High Wind in Jamaica*, was published.

Hughes Thomas. English writer. Born at Uffington, Berkshire, Oct. 20, 1822, he was educated at Rugby and Oriel College, Oxford. He became a barrister and in 1882 was made a county court judge. From 1865 to 1874 he was a Liberal M.P., and he was associated with Kingsley and Maurice in the Christian Socialist movement. He died March 22, 1896.

Hughes is immortal as the author of *Tom Brown's School-days*, published in 1857 and largely autobiographical of his own life at Rugby. He also wrote *Tom Brown at Oxford* and *The Scouring of the White Horse*.

Hughes William Morris. Australian politician. Born in Wales, Sept. 25, 1864, the son of a joiner, he became a teacher, but in 1884 emigrated to Australia. There he worked on a sheep farm before settling in Sydney, where he became associated with the waterside workers. Prominent during the great strike in 1890, he organised a trade union of which he became secretary and then president. In 1894 he was elected to the legislature of New South Wales. In 1901 he was elected a member of the first Commonwealth Parliament and in 1904 was made Minister for External Affairs in the Labour Government. In 1908, having been a barrister since 1903, he was made Attorney-General, a post he filled until 1909 and again from 1910-13, and from 1914-21.

In 1915 Hughes succeeded Fisher as Prime Minister, and he filled that post through the years of the war. He attended the Peace Conference in Paris, where he forcefully upheld Australia's case. In 1923 he resigned office, but retained his seat in Parliament. In 1929 he formed what was called the Australian Party, and published his book *The Splendid Adventure*.

Hugo Victor Marie. French writer. Born at Besançon, Feb. 26, 1802, he was the son of a soldier who became a general. His childhood was passed in Paris and Madrid, and he soon began to write, his earliest published work being a volume of poems. This was followed by books of stories that laid the foundation of his fame, and then came several dramas, *Cromwell* being the first and *Hernani* the most notable. His high reputation was increased by *Notre Dame de Paris*, the first of the great romances which made him popular in England. Others are *Les Travailleurs de la Mer*, the wonderful *Les Misérables* and *Quatrevingt-Treize*.

The works named, however, represent but a tithe of Hugo's varied literary output. He wrote many plays, some of high value such as *Marion Delorme*, *Rigoletto* and *Ruy Blas*; volumes of verse were produced regularly, the best being *Les Voix Intérieures*; also books dealing with the events of his own time, such as *L'Histoire d'un Crime* and *Napoleon le Petit*.

Others were of an autobiographical nature: yet others were humanitarian in tone.

Apart from his writings Hugo lived an eventful life. He married in 1822, but his wife soon preferred the society of Sainte-Beuve, and he lived with an actress, Juliette Drouot. He took an active part in politics. First a royalist, he gave his support to Louis Napoleon until 1848. In that year and 1849 he was elected to the constituent and the legislative assemblies and in 1851, having opposed the designs of the future emperor, he fled the country. He went to Brussels, whence he was expelled, and then to Jersey, before making his home at Hauteville House, Guernsey, where he passed much of his later life. The life and scenery of Guernsey gave colour to his later books. In 1870-71 he was in Paris, and in 1876 he was chosen a member of the Senate. He died May 22, 1885.

Huguenots Name used for the French people who accepted the reformed religion. They came into existence in the 16th century and included many nobles. Until his conversion, Henry IV. was a Huguenot. The Huguenots were persecuted and their resistance led to religious wars. In 1598, by the Edict of Nantes, they were granted civil and religious liberty, but the Edict was revoked in 1685, and many Huguenots emigrated to England, the Netherlands and Germany. In 1789 the restrictions on their worship were removed.

Hull City and seaport of Yorkshire (E.R.), in full, Kingston-upon-Hull. It stands on the Humber, just where the River Hull falls into the estuary, and is 172 m. from London. It is on both the L.N.E. and L.M.S. Rlys., and a steam ferry connects it with New Holland in Lincolnshire.

Hull owes its prosperity to its position. The docks cover 250 acres and a large trade passes through the port. Much timber is imported and the fisheries are important. Steamers go from here to ports on the Continent. The city has large flour mills, cement works, chemical works, and seed crushing mills, and here Reckitt and Sons have their works. There is a university college, opened in 1928, and a technical college. It has an aerodrome at Hedon. The museums include one named after William Wilberforce, and there is a fine art gallery. Pop. (1931) 313,366.

Hull City of Quebec, Canada. On the Ottawa river, it is 119 m. from Montreal and is served by the C.P.R. and a system of electric railways. Bridges connect it with Ottawa. Hull is a centre of the lumber industry and its activities include the making of furniture. Pop. 35,200.

Hull River of Yorkshire (E.R.). It rises near Great Driffield and enters the Humber at Kingston-upon-Hull, commonly known as Hull. It is 23 m. in length.

Hulse John. English divine. Born at Middlewich, Cheshire, March 15, 1708, he was educated at S. John's College, Cambridge, and was ordained. Most of his life, however, was passed on his estate in Cheshire. He died Dec. 14, 1790. Hulse left his wealth to the University of Cambridge, where his name is perpetuated by the Hulsean Chair of Divinity, the Hulsean Lectures, and the Hulsean Prize and Scholarships at S. John's College.

Hulton Name of three districts near Bolton, Lancashire. Little Hulton is an urban district, 192 m. from London by the L.M.S. Rly. and 4 m. from Bolton. Here are

collieries. Pop. (1931) 7878. The other two are **Middle and Over Hulton**.

Humanism Term used for learning, especially a knowledge of literature. It arose at the time of the Renaissance and the early humanists included Sir Thomas More and Erasmus.

Humanitarian Word used loosely for a philanthropist. It meant originally one who did not believe in the divinity of Christ.

The **Royal Humane Society** at 4 Trafalgar Square, London, W.C., is concerned with rewarding those who save life, especially at sea.

Humber Estuary of the east coast of England. It is formed by the rivers Trent and Ouse which unite near Goolo. It is about 38 m. in length. There is a ferry between Hull and New Holland in Lincolnshire, and it is proposed to build a bridge.

Humbert I. King of Italy. Born in Turin, March 14, 1814, he was the eldest son of Victor Emmanuel, who became king of united Italy in 1870. He took part in some of the fighting of the period, and in 1878 became king, reigning until he was killed at Monza by an anarchist, July 29, 1900. He was succeeded by his son, Victor Emmanuel III.

Humble Bee Widespread genus of bees (*bombus*). Humble bees live in communities and are found in the warmer parts of the world. The females and the workers help to construct the irregular nest, where honey is stored for the females, who alone survive in the winter. The common *B. terrestris* forms nests of carded moss; the stone humble bee, *B. lapidarius*, forms nests in cavities. They are sometimes called bumble bees.

Humboldt Baron von. German scientist. Born in Berlin, Sept. 14, 1769, Friedrich Heinrich Alexander Humboldt, the son of aristocratic parents, spent his early years in study and travel, afterwards becoming a mining official. In 1799 he went to S. America exploring and ascended 19,000 ft. up Chimborazo. In 1829 he explored in Asia. In 1845 he published the first volume of his influential *Cosmos*. Three other works followed and their appearance marks a stage in the history of the scientific knowledge of the earth. He also wrote 30 volumes on his travels in S. America, besides books on other subjects. His last years were passed in Berlin. He died May 6, 1859.

Humboldt's elder brother, Karl Wilhelm von Humboldt, became a diplomat and represented Prussia in Rome and Vienna. From 1808-10, he was Minister of Education and he was responsible for the foundation of the University of Berlin. A great student, especially of language and literature, he died April 8, 1835.

The **Humboldt current** is a current that flows from Valparaiso to Ecuador along the coast of S. America.

Hume David. Scottish writer and thinker. Born in Edinburgh, April 26, 1711, he was educated there and in France by the Jesuits. He was trained for the law, but turned to literature and in 1737 wrote *A Treatise of Human Nature*. *Essays Moral, Social and Political* followed, and in 1751 *Inquiry into the Principles of Morals*. In 1752 he was appointed librarian to the Advocates Library, Edinburgh, and wrote his famous *Political Discourses*, then, between 1754 and 1762, his *History of England*, which gave him a great reputation. He died in Edinburgh, Aug. 25, 1776.

Hume's writings exercised a great deal of influence, although they were suspect to many Christians. In philosophy he was a utilitarian and he put forward the doctrine of Free Trade which was taken up by Adam Smith.

Hume Joseph. British politician. Born in Montrose, Jan. 22, 1777, he became a doctor and served in the army. After a period as a surgeon under the East India Co., in which he made a fortune, he returned to England in 1808. In 1812 he was elected M.P. for Weymouth and he sat in the House of Commons for the remainder of his days, representing Montrose from 1842. He died Feb. 20, 1855. Hume was one of the first of the radicals and advocated reform of almost every kind, financial, legal and economic.

Humerus Upper bone of the arm. It or shoulder blade, forming the shoulder joint, and with the radius and ulna at the elbow. The shoulder joint, held in a fibrous capsule, forms a ball and socket joint which, in man, allows a great swing of movement of the arm.

Humidity In meteorology the state of the atmosphere as regards the degree of moisture it contains. Low humidity is when the air is dry and high humidity when excessive water vapour is present. The humidity of the British Isles varies greatly between day and night, but seasonal variation is relatively small. The amount of water vapour in the atmosphere is measured by the hygrometer (*q.v.*), and expressed in inches of mercury as absolute humidity.

Humming Bird Large family of American birds allied to swifts. They make a humming sound when vibrating the wings in rapid flight. There are about 500 species, found in tropical regions. Many have brilliant plumage, but little or no song. They feed mostly on insects, which they collect from flowers by their long tongues.

Humogen Form of humus. It is prepared by the inoculation of peat by certain forms of aerobic bacteria causing decomposition of the peat into a material consisting largely of ammonium humate. When humogen is applied to soils, nitrogen-fixing bacteria are introduced and the soil is rendered more fertile by the action of these micro-organisms.

Humour Sense of fun; appreciation of witty. Its early meaning was different. The ancients believed that in man there were four humours, blood, choler, phlegm and melancholy. A man was sanguine, or bilious, or phlegmatic, or melancholy, according as one or the other predominated in his constitution.

When the word began to be used in its modern sense the word humorist was given to a man of letters who was able by his writings to amuse. Rabelais and Dickens are among the world's greatest humorists. Tom Hood was another, and many have been associated with *Punch*. The word also came to be applied to artists who possessed the same power, prominent among whom was John Leech.

Thackeray in his *English Humorists* gave a somewhat wider meaning to the word. A humorist should be distinguished from a wit. Sydney Smith was a wit, but hardly a humorist.

Humperdinck Engelbert. German composer. Born at Siegburg, Sept. 1, 1854, he studied at Munich and in Italy, and helped Wagner to produce

Parisital. He became professor of composition at Frankfurt, moving to Berlin in 1900. His works are frequently based on peasant music, notably his delightful children's opera, *Hansel and Gretel*. He died Sept. 27, 1921.

Hunchback Deformity sometimes seen in men and women. It is due to a curvature of the spine, which in turn arises from tuberculosis. It is incurable, although treatment may prevent it from getting worse. There are many hunchbacks in legend and fairy lore; in real life Richard III. was notable.

A variant of the word is humpback. A kind of whale, black in colour and valued for its oil, is called the **hump-back whale** on account of its shape.

Hundred Name used for a division of many English counties. It goes back to Anglo-Saxon times when we hear of hundred courts and hundred men. These lasted until the end of the Middle Ages, but until 1886 the hundred was liable for damage done to property by rioters. The hundreds still exist and the word is occasionally used.

In Lincolnshire and other parts of England where Danish influence was strong the equivalent is wapentake. In Sussex and Kent it is rape or lathe, and in Northumberland and Cumberland it is ward. The name may have meant that 100 families lived in the district or that it contained 100 hides of land.

Hundred Days Name given to the period between Napoleon's escape from Elba and his surrender after Waterloo. It lasted from March 20, when he entered Paris, to June 28, 1815.

Hundred Years' War Struggle between England and France. It began in 1338 when Edward III. claimed the throne of France. The English won victories at Crecy and Poitiers, and in 1360 peace was made at Breigny. By this Edward secured much of France, but not the crown. The war began again in 1369 and lasted, with intervening truces, until 1396. By the treaty of 1396 the English lost a good part of their possessions.

Another period of warfare began in 1403. In 1415 Henry V., claiming the throne of France, made it a more serious affair. He won the Battle of Agincourt, conquered Normandy, and in 1420, by the Treaty of Troyes, was recognised as Regent and future King of France. However, part of the nation objected to English rule and the war went on until 1429, when the tide turned on the arrival of Joan of Arc. The English then steadily lost ground and the struggle ended in 1453, all France, except Calais, being lost.

Hungary Kingdom of Europe. In its present form it dates from 1919, when it was separated from Austria. Its area is 35,875 sq. m. and it lies between Austria, Czechoslovakia, Rumania and Yugoslavia. The Danube, the chief river, flows from north to south. Balaton is the largest lake. The capital is Budapest. The next largest places are Szeged and Debrecen. About 90 per cent. of the people are Magyars.

The surface is almost uniformly level and with a fertile soil agriculture is the main industry. Wheat, maize, rye, barley and potatoes are grown in large quantities. Coal is mined and there are considerable forest areas. The country has a good system of railways. Its outlet to the sea is along the Danube, on which there are river ports.

The throne being regarded as vacant, Hungary is governed by a regent, with a legislature of two houses. There is an army, limited by treaty to 35,000 men, but no navy or air force. Pop. 8,525,700.

HISTORY. Hungary became a kingdom about 1000, Stephen, who was made its patron saint, being the first king. For 500 years it was ruled by his successors, much of their time being passed in warfare with the Turks. In 1526 King Louis was killed in battle, and Ferdinand, Archduke of Austria, who had married his sister, became king. This united Hungary with Austria and from 1867 till 1918 the two formed the dual monarchy, or empire, of Austria-Hungary. In 1918, the Emperor Charles was deposed and a republic was proclaimed. The Bolsheviks became supreme, but were soon driven out, and after much trouble the present system, a monarchy without a monarch, was established.

In the 19th century Hungary covered 120,000 sq. m. The Treaty of Trianon, however, gave much of this to neighbouring states, leaving the new Hungary less than a third the size of the old one. The losses included a coast line. On the other hand Hungary was made a homogeneous state. Previously the rivalries between Magyars and Germans had been a source of trouble. The reduction of Hungary's area, however, has caused much unrest.

Hungerford Market town of Berkshire. It stands on the River Kennet, 26 m. from Reading, on the G.W. Ry. At Hockliffe, the second Monday or Tuesday after Easter, an annual festival is held. The town has an agricultural trade and is a fishing centre. Pop. 2781.

Hungerford Name of a famous English family. Sir Walter Hungerford was made a baron in 1426. The title was held later by the earls of Huntingdon and the marquesses of Hastings. It fell into abeyance in 1868 and again in 1920. Since 1921 it has been held by Viscountess St. Davids.

The family had a house near Charing Cross and in the grounds a market was built in 1669. It was called **Hungerford Market** and lasted until 1862, when the railway station was built. The bridge across the Thames here is called Hungerford Bridge.

Huns Horde of Asiatics who invaded Europe in the 4th century, doing great damage. After a career of conquest under Attila they were defeated in 451 at Châlons by Theodoric, King of the Visigoths. Soon afterwards they disappeared. They gave their name to Hungary.

Hunstanton Watery place and urban district of Norfolk. It stands on the Wash, 112 m. from London, on the L.N.E. Ry. Near is the village of Old Hunstanton with a fine church. The hall has been for centuries the seat of the family of Le Strange. Pop. (1931) 3131.

Hunt Name used for a body of men, with accompanying dogs, that hunt wild animals. The chief are those that hunt the fox, but there are also hunts for stags and others. The chief English hunts include the Quorn, Mornell, Cottesmore, Pychley and Belvoir. Each has a master (M.F.H.), a chief whip and other whips and a pack of hounds. The expenses are usually met by subscriptions, but a few hunts are maintained by individual noblemen.

Hunt James Henry Leigh. English writer. Born at Southgate, London, Oct. 19.

1784, the son of Isaac Hunt, a clergyman from Barbados, he soon began to write, and in 1808 became editor of the *Examiner*, a paper started by his brother. In it he gave utterance to advanced views, and for a libel on the Prince Regent, whom he called "a corpulent Adonis of 50," he was sent to prison for two years in 1813. In 1821 he went to Italy to visit Shelley and Byron, and was there when Shelley was drowned. With Byron he started a quarterly magazine called the *Liberal*, but it soon died. With his wife and seven children he returned to London in 1825, and lived in poverty there until his death at Putney, Aug. 28, 1859.

Hunt was friendly with most of the great literary figures of his day. He himself wrote essays, poems and novels, as well as *Lord Byron and Some of his Contemporaries* and an *Autobiography*. *The Feast of the Poets*, *The Story of Rimini*, *Wit and Humour*, and *Imagination and Fancy*, contain some of his best work.

Hunt William Holman. English painter. Born in London, April 2, 1827, he was a clerk before entering the Royal Academy schools. Soon he began to exhibit and in 1848 he assisted D. G. Rossetti, John E. Millais and others to found the Pre-Raphaelite brotherhood, on which, many years afterwards, he wrote a book. In 1905 he was given the Order of Merit and he died in London, Sept. 7, 1910.

Holman Hunt's best picture, though perhaps over elaborate, is "The Hiring Shepherd" in Manchester. "The Light of the World" is in Keble College, Oxford, and a copy is in St. Paul's Cathedral. "The Triumph of the Innocents" is in Manchester, and "The Finding of Christ in the Temple" in Birmingham. Others are in the Tate Gallery, London.

Hunter John. Scottish surgeon. Born in Lanarkshire at Long Calderwood, Feb. 13, 1728, he was for a time in business in Glasgow. About 1745 he followed his brother, William, to London, where he studied at the hospitals and assisted in his brother's surgical work. He became a surgeon at St. George's Hospital and gained further experience as an army doctor between 1760 and 1763. In 1763 he began to practise in Golden Square, London, and was soon one of the leading surgeons of the day, being made surgeon extraordinary to George III., and deputy surgeon general of the army. He was elected an F.R.S. He died Oct. 16, 1793, and is buried in Westminster Abbey.

Few names stand higher in the medical profession than that of Hunter. His operation for aneurism made him known, but he was much more than a skilled surgeon. He made an anatomical collection and his 10,000 specimens, for which he built a museum in Leicester Square, London, were bought and given to the Royal College of Surgeons. He also wrote books on geology and other branches of science. In 1813, in his honour, the College of Surgeons founded the *Hunterian Oration*, which is still given annually. He is also remembered by the *Hunterian Society*.

William Hunter (1718-83) was physician to Queen Charlotte and Professor of Anatomy at the Royal Academy. He, too, formed a collection and built a museum, which became the property of the University of Glasgow.

Hunter Sir Archibald. British soldier. Born. Sept. 6, 1856, he was educated at Glasgow Academy, and entered the army. In 1884 he went to Egypt, where he became associated with Kitchener. In 1895 he was given command of the Frontier Field Force.

In 1898 he led a division at the Battle of the Atbara and was in command of the British division at Omdurman, being then made Governor of that place. He was knighted in 1898. In 1900-01 he commanded a division in S. Africa; in 1901-03 he was commander-in-chief in Scotland; and from 1904-09 he was in India, first at the head of an army corps and then of the southern army. From 1910-13 Hunter was Governor of Gibraltar. During the Great War he held high command at home until he retired in 1918. From 1918-22 he was Unionist M.P. for the Lancaster division.

Hunter's Moon Month after the harvest moon, which is the full moon nearest the autumnal equinox. The hunting season succeeds harvest time.

Huntingdon Borough and market town of Huntingdonshire, also the county town. It stands on the Ouse, 60 m. from London on the L.N.E. Rly. Notable buildings are the George Inn with its gallery in the courtyard and Cromwell House, a reminder of the town's association with the Protector's family. Pop. (1931) 4108.

Huntingdon Countess of. Selina, daughter of Earl Ferrers, was born in 1707 and in 1728 married the Earl of Huntingdon. About 1739 she became a follower of John Wesley. She made George Whitefield her chaplain, and soon after her husband's death began to build chapels. Later she formed a separate denomination called the Countess of Huntingdon's Connexion, and founded a college for training ministers at Talgarth. When she died, June 17, 1791, there were 64 chapels in her Connexion. This is now part of the Congregational denomination.

Huntingdon Earl of. English title held by the family of Hastings. For a long time the earldom of Huntingdon was held by the kings of Scotland, but this arrangement ended about 1330. In 1529, George, Baron Hastings, was made earl and the title still remains with his descendants. The earl's eldest son is called Viscount Hastings.

Huntingdonshire County of England. After Rutland, it is the smallest in the east of the country. Its area is 366 sq. m. The land is flat and the soil fertile, wheat and barley being grown. Huntingdon is the county town; other towns are St. Neots, St. Ives and Godmarchester. The chief river is the Great Ouse; the Nen forms the northern boundary. The railways are the L.M.S. and L.N.E., and the county is traversed by the Great North Road. Pop. (1931) 56,204.

Huntingtower Village of Perthshire. It is on the River Almond, 3 m. from Perth, and is famous for its castle. This was originally Ruthven Castle, and from it James VI. was taken forcibly by the Earl of Gowrie and his associates in 1582. The name of the castle was then changed. Now partly a ruin it is open to visitors. Huntingtower gives its name to a novel by John Buchan. The village has bleaching yards.

Huntly Market town of Aberdeenshire. It is 41 m. from Aberdeen, at the union of the rivers Deveron and Bogie, on the L.N.E. Rly. The castle, once a seat of the Gordons, is in ruins. The district around Huntly is called Strathbogie. Huntly is an agricultural centre. Pop. 3750.

Huntly Marquess of. Scottish title held by the family of Gordon. In 1449

Alexander, Seton, a grandson of Sir Adam Gordon, was made Earl of Huntly, and took the name of Gordon. The succeeding earls, who had extensive lands in Aberdeenshire and lived at Huntly Castle, were persons of note in Scottish history, two of them being Lord Chancellor. In 1599 George Gordon, the 6th earl, was made a marquess. George, the 2nd marquess, was executed in 1649 for his loyalty to Charles I. In 1661 George, the 4th marquess, was made Duke of Gordon. This title became extinct in 1836, when a distant kinsman, George Gordon, became Marquess of Huntly. The title still remains in his family. The seat of the marquess is Aboyne Castle in Aberdeenshire and his eldest son is called the Earl of Aboyne. The marquess ranks as the premier marquess of Scotland.

Hunyadi Janos. Hungarian statesman and general. Born about 1387, he won renown in the Hussite Wars, and for some time governed his country as regent. From 1441 onwards he won brilliant victories against the Turks, and was largely instrumental in saving Constantinople and maintaining Hungarian independence. He died in harness, Aug. 11, 1456.

Huonpine Evergreen tree of the natural order *coniferae*. Allied to the yew, it grows to a height of 100 ft. The wood is close grained and has an aromatic odour. It is found chiefly in Tasmania.

Hurdle Interlaced frame of twigs or sticks. Hurdles are used to make pens for sheep and for other such purposes or for games. Formerly prisoners were dragged to execution tied to a hurdle.

Races over hurdles are events at most athletic sports. The usual lengths are 120, 220 and 440 yds. Hurdle races for horses are also held.

Hurford Town of Arrshire. Near Kilmarnock, it is situated on the Irvine, and is 389 m. from London by the L.M.S. Rly. There are coal mines near, and worsted is made. Pop. 3825.

Hurlingham District of London. It is in the borough of Fulham adjoining the Thames. In 1867 the club called the Hurlingham Club was formed here. It bought Hurlingham House and grounds, and was for some time a centre of pigeon shooting. Later it took up polo and is now the recognised authority on this game.

Hurley Irish ball game often called hurling. It rather resembles hockey, which has developed from it. The implements are a ball and stick with ends much wider and flatter than those of a hockey stick. The game is played usually by 11 a side and a goal is scored when the ball is driven into the net, as at association football. A goal counts three points; if the ball is sent over the goal post but between the uprights one point is scored. The players may, in addition to hitting the ball, carry it on the blade of the stick, but they may not handle it.

Huron One of the five great lakes of N. America. It covers 23,200 sq. m. and is 207 m. long. Partly American and partly Canadian it includes Georgian Bay and Saginaw Bay. It is connected with Lake Superior by the Sault Ste. Marie Canal; to Lake Erie by the St. Clair and Detroit rivers; and to Lake Michigan by the Strait of Mackinac. The largest island in it is Grand Manitoulin, which is on the Canadian side. The ports include Bay City, Sarnia and Goderich. The

name Huron is that of a group of Indian tribes once living in Ontario.

Hurricane Violent tropical storm accompanied by sudden changes of the wind. It is common in the W. Indies, chiefly during August and September. Hurricanes seldom occur in the S. Pacific and are unknown in the S. Atlantic. They are generated as small cyclones of slow motion with steep gradients along the polar margin of the Equatorial belt.

Hursley Village of Hampshire. It is 5 m. from Winchester. **Hursley Park**, long the seat of the Heathcote family, is the successor of the house in which Richard Cromwell lived.

Hurst Castle Building in Hampshire. It stands at the western end of the Solent, 4 m. from Lymington, and is the property of the Admiralty. It was built in the 16th century to guard the Solent. On the promontory is also a lighthouse and a signalling station. Charles I. was imprisoned here in 1648.

Hurstonceaux Village of Sussex. It is 12 m. from Eastbourne. Its feudal castle, long a ruin, was restored in the 20th century. All Saints is an old church with memorials to the families of Fiennes, Dacre and Hare.

Hurst Park Racecourse in Surrey. It is at Molesey Hurst on the Thames. Opposite to it, on the Middlesex side of the river, is Hampton.

Hurstpierpoint Village of Sussex. It is 8 m. from Brighton and 2 m. from Hassocks, its station on the S. Rly. Holy Trinity Church is a fine modern building. Here is St. John's College, a public school for boys.

Husband Married man. Until recent times husband and wife were in very different positions before the law of England, as they were, and to some extent are, in other countries. To-day they are in many respects equal. Since 1870 a married woman's property has been distinct from that of her husband. The grounds on which divorce can be obtained are now the same for both sexes. Until 1923 a wife could not obtain a divorce for adultery unless it was accompanied by cruelty.

A husband is responsible for his wife's debts, as far as they are for household necessities, and for maintaining her in her station in life. Husbands can, however, rid themselves of this responsibility by making an announcement to tradesmen, usually through the Press, to that effect. A husband is responsible for damages if his wife libels or slanders any one.

The word **husbandman** is sometimes used for a farmer and farming is called husbandry. A **ship's husband** is a man who looks after the fittings, etc., of the ship.

Huskisson William. English statesman. Born in Worcestershire, March 11, 1770, he entered Parliament in 1796, and in 1804 Pitt made him Secretary to the Treasury. In 1814 he was made Commissioner of Woods and Forests; in 1823 President of the Board of Trade; and in 1827 Secretary for the Colonies. He left office in 1828 and was killed, Sept. 15, 1830, at the opening of the Liverpool and Manchester Rly. Although a Tory, Huskisson was something of a Free Trader. He brought about the removal of certain import duties and the relaxation of the navigation laws.

Huss John. Bohemian reformer. He was born about 1370, the son of a

peasant, and was named after his birthplace, Husinetz. He became a priest and in 1402 was made Rector of Prague University. His strong character made him a champion of the Czechs against the Germans, but he is better known for his reforming zeal. His preaching of Wycliffe's doctrines aroused the anger of the authorities, and he was charged with heresy. However, he had by now a numerous following and, in spite of a Papal interdict on the city and his own excommunication, he continued to preach. Gradually his position became more difficult and in 1412 he retired from Prague and wrote his chief work, *De Ecclesia*. In 1414 the Emperor Sigismund gave Huss a safe conduct to attend the Council of Constance. He went and was at once arrested as a heretic, was tried, condemned on July 5, 1415, and on the next day was burned. See **HUSSITES**.

Hussar Name given to certain kinds of cavalry. It is a Hungarian word meaning a freebooter and the first hussars were Hungarian soldiers. They wore a busby, which is still worn by the hussar regiments in the British, German and other armies.

Before the Great War there were 12 regiments of hussars in the British Army; now there are only nine. These are the 3rd, 4th, 7th, 8th, 10th, 11th, 13th and 18th, 14th and 20th, 15th and 19th, the last mentioned three being amalgamations.

Hussein King of the Hejaz. He was an Arab chieftain and as grand sheriff ruled the district around Mecca as a vassal of Turkey. In 1916, assisted by Great Britain, he declared himself independent. His troops, under his son, Feisal, entered the war against Turkey, and soon Hussein was recognised as King of the Hejaz. His rule lasted until 1924, when Mecca was taken by the Wahabites and he abdicated. He died June 4, 1931.

Another Hussein was the first Sultan of Egypt. A son of Ismail Pasha, he was made Sultan in 1914 when Egypt passed under British protection. His reign ended with his death, Oct. 9, 1917.

Hussites Followers of John Huss. After his martyrdom in 1415, his followers, already formidable, became important politically. Under John Zizka and other leaders they made war for several years on the Emperor Sigismund. In 1431 peace was made by the Calixtines, one of the two parties into which they were divided; the other, the Taborites, refused to come to terms until some years later. They are now known as the Bohemian Brethren.

Hustings Platform used in England at elections before the introduction of secret voting. It was erected in front of the town hall and from it the candidates delivered speeches when nominated. The scene before the hustings is described by Dickens in *The Pickwick Papers* and pictorially by Hogarth.

Hutchinson John. English soldier. Hutchinson of Owthorpe, Nottinghamshire, he was born in Sept. 1615. In 1642 after studying law, he joined the Parliamentary forces and was made Governor of Nottingham Castle, which he defended until the end of the struggle. He was M.P. for Nottingham in the Long Parliament, was one of the judges of Charles I., and a member of the first Council of State. He was less prominent during the Commonwealth period, but was a member of Parliament in 1659 and 1660. In 1663 he was arrested in

connection with a plot against Charles II., and he died in prison, Sept. 11, 1664.

Hutchinson is known through the delightful *Memoirs of Colonel Hutchinson*, written by his wife, Lucy, daughter of Sir Allen Apsley. In this he is represented as the ideal Puritan gentleman.

Hut Circle Remains of a prehistoric round dwelling. Many British examples survive. At Glastonbury there are 90 with centre posts supporting thatched roofs. Grimspond, on Dartmoor, has 34; Carn Bre, Cornwall, has 100; Ty Mawr, Holyhead, includes more than 50. There are many in Anglesey.

Huth Library Collection of books formed by Henry Huth (1815-78), and augmented by his son Alfred Henry Huth (1850-1910), members of a firm of London bankers. It contained early printed English, Spanish and German Bibles, books of voyages and poetry, besides MSS. and prints. The son bequeathed to the British Museum a choice of 50 items. Alexander Cochrane purchased for the Yale University Elizabethan Club 43 Shakespearean folios and quartos, reputedly for £50,000. The remainder were auctioned in 1911-20, and realised large sums.

Huthwaite Urban district of Nottinghamshire. It is 3 sq. miles from Mansfield and electric tramways link it with Sutton-in-Ashfield. It is a coal mining centre. Pop. (1931) 5092.

Hutten Ulrich von. German writer. Born April 21, 1488, of noble family, and educated at the abbey of Fulda, he studied law at Bologna and was secretary to the Archbishop of Mainz. He began to write against the Roman Catholic Church, and had to seek refuge with the Protestants whose cause he championed. Hutten is best known by his *Epistolae Obscurorum Virorum* (Letters of Obscure Men), satires on the ignorance of the monks, and his *Dialogues*, attacks on the Pope and the Church. He died Aug. 28, 1523.

Hutton Richard Holt. English journalist. He was born in Leeds, June 2, 1826, and educated at University College, London, and abroad. In 1851 he became editor of the *Enquirer*; later he was joint editor of the *National Review*, and assistant editor of the *Economist*. At the same time (1856-1865) he was Professor of Mathematics at Bedford College, London. In 1860 began his long connection with the *Spectator*, which he helped to control until his death, Sept. 9, 1897.

His books include several on theological subjects and volumes of his contributions to the *Spectator*.

Huxley Aldous Leonard. English novelist. Born July 26, 1894, he was a son of Leonard Huxley, editor of the *Cornwall Magazine* and grandson of T. H. Huxley. He was educated at Eton and Balliol College, Oxford, and soon began to write for the Press. In 1916 a novel, *The Burning Wheel*, appeared and others followed. Perhaps the best known are *The Defeat of Youth*, *Chrome Yellow*, *Little Mexican*, *Jesting Pilate* and *Point Counterpoint*, and his essays, *Music at Night*. In 1932 appeared *Brave New World*.

Huxley's older brother, Julian Sorell Huxley, was born June 22, 1887, and educated at Eton and Oxford, becoming a scientist. He was in the United States 1912-16 and in 1919 was made Fellow and Lecturer at New College, Oxford. From 1925-27 he was Professor of Zoology at King's College, London, and in

1926 was made Fullerton Professor of Physiology at the Royal Institution. Huxley has done extremely valuable work in biology.

Huxley **Thomas Henry**, English scientist. Born at Ealing, May 4, 1825, he became a medical student. In 1846 he secured an appointment as assistant surgeon on H.M.S. *Rattlesnake*, was engaged for three years on surveying work in Australian waters, and on his return published some papers recording his discoveries about ocean life. In 1851 he was made an F.R.S., and in 1854 Professor of Natural History at the Royal School of Mines. In 1863 he was made Professor at the College of Surgeons and the Royal Institution, and from 1881-85 he was Inspector of Salmon Fisheries. He was President of the British Association and other learned societies, and in 1892 was made a Privy Councillor. He died June 29, 1895.

Huxley wrote a number of scientific works, also some popular books on scientific subjects. These included *Lay Sermons and Essays on Controversial Questions*. An authority on animal life and a champion of evolution, Huxley was one of the foremost scientists of the 19th century.

Huysmans **Joris Karl**, French novelist of Dutch extraction. Born in Paris, Feb. 5, 1848, he was a stern realist, as is shown in his early works, notably *En ménage* (1881), but his later works display a transition from Satanism towards religion. In Durtal, a character who appears in *La-Bas* and *L'Obélisque*. He was much influenced by the de Goncourts, who admitted him to their academy. He was converted to Catholicism and died a mystic, May 13 1907.

Huyton Urban district of Lancashire called Huyton with Roby. Huyton is 5 m. from Liverpool and is a junction on the L.M.S. Rly. Near is Knowsley, the seat of the Earl of Derby. Pop. (1931) 5198.

Hwang Ho River of China, sometimes called the Yellow River and the Hoang-Ho. It rises in Tibet and flows through China to the Pacific Ocean in the Gulf of Chih-li, where it enters the sea by a great delta. Its chief tributary is the Wei-ho. In many places the river is above the level of the surrounding country, its waters being confined by embankments. On this account floods, sometimes very terrible, are frequent. On several occasions the river has changed its course.

Hyacinth Hardy bulbous herb of the lily order. It has been cultivated, especially in Holland, since the 16th century for its sweet scented flowers. It was derived from a Levantine plant, *Hyacinthus orientalis*. Growers have produced single and double blooms in red, blue, purple, yellow and white, both for indoor and bedding culture. Spanish and Roman forms also occur.

Hyacinth Transparent red variety of the mineral zircon, a silicate of zirconium. It is known also as jacynth, and is valued as a gem-stone, its colour probably being due to traces of iron oxide. It is found in sands and gravels in Ceylon and Central France as a decomposition product of granitic rocks.

Hyacinthus In Greek mythology the son of Amyclas, a Spartan king. He was very beautiful and was loved by Apollo. He met his death when the two were playing together, and the story goes that the flower called after him, the hyacinth, sprang

from his blood. A festival called the **Hyacinthia** was held in his honour in Sparta.

Hyades Maidens in Greek mythology. Zeus entrusted them with the care of Dionysus and they were afterwards placed among the stars. The name is now that of seven stars. The word means rain.

Hyaena Family of carnivorous mammals allied to the civets. They are shaggy, with powerful jaws and short tails. The hind limbs are shorter than the fore limbs and all are four-toed. The striped, or laughing, hyaena is found in Asia and Africa; the brown and spotted in Africa. Hyaenas feed at night on carrion.

Hyalite Transparent, colourless and glassy variety of opal. It occurs as small botryoidal or mammillary incrustations in cavities in basalt. Fine specimens occur at Walsch in Bohemia.

Hybrid Term applied to an animal or plant produced by crossing two different species or varieties. Usually among animals the hybrid is sterile, although the result of the first crossing of different breeds or races is commonly great sturdiness or "hybrid vigour" shown in greater strength, size, and often resistance to unfavourable conditions. In 1932 an experiment in hybridism was successfully carried out, an eland antelope being mated with a domestic cow.

Hydaspes Old name for the Indian river the Great won a famous victory.

Hyde Borough and market town of Cheshire. It is on the river Tame, 181 m. from London and 7½ from Manchester, on the L.M.S. Rly. Here are engineering works and also hat factories and cotton mills. Pop. (1931) 32,066.

Hyde Park Park in London. It lies between Park Lane, Knightsbridge, Kensington Gardens and Bayswater Road. In it are the Serpentine, an artificial lake used for bathing and boating; Rotten Row, used for riding; and a bird sanctuary. Another feature is the garden called the Dell. The flower beds are very beautiful. The park covers 360 acres and is entered at the eastern end by fine gateways, one at Hyde Park Corner and another called the Marble Arch. Near the Marble Arch open-air meetings of all kinds are held throughout the week and especially on Sundays.

The park was once part of the Manor of Hyde. Henry VIII. made it into a deer park, and it has since been crown property. At one time races were held here and in 1851 it was the scene of the great international exhibition for which the Crystal Palace was erected.

Hyderabad City of India and the capital of the state of Hyderabad, also spelled Haidarabad. Some beautiful buildings include the Nizam's palace, the Jama Masjid Mosque and the Char Minar, built in 1591. The inner city is surrounded by walls 6 m. in circumference. Beyond there is the outer city called Berun, the whole covering 50 sq. m. There is railway connection with Secunderabad and other places. Pop. 404,000.

Another Hyderabad is a town in Bombay. Pop. 82,000.

Hyderabad Native state of India. It is in the Deccan and consists of two parts, Marathwara and Telangana. Its area is 82,700 sq. m. and the ruler is the Nizam, who is entitled to a salute of 21 guns. Hyderabad is the capital. Having been part

of the Mogul Empire, Hyderabad became an independent state in 1724. In 1766 a treaty was made with the East India Company, and since then friendly relations with the British Empire have been the rule. Pop. 12,470,000.

Hydra In Greek legend, a nine-headed monster haunting the Lerna marshes. Its destruction formed one of the labours of Hercules. As each head was removed two others replaced it, the central one being immortal. Aided by Iolaus, Hercules burned their roots with firebrands, and then severed and buried the central head.

Hydra Small freshwater organism or "polyp." Belonging to the class *hydrozoa*, it is common in ponds and streams, where it attaches itself by a sticky secretion to weeds, etc. The hydra consists of a soft tubular body, $\frac{1}{2}$ to $\frac{3}{4}$ inch in length, with a caecum of six to eight hollow tentacles round the mouth.

Hydrangea Genus of flowering shrubs of the saxifrage order. The flowers are white, blue or pink. Several are grown in Great Britain, notably *H. paniculata* and *H. hortensis*, the former being much the harder of the two. They like a sheltered position in sandy loam and the soil should be well manured. They can be planted in March or October. The hydrangea is also suitable for pots and for forcing in a hothouse.

Hydrant Appliance for drawing water off from a main, usually in a street. The common fire hydrant consists of an upright hollow cylinder furnished with a nozzle for the attachment of a hose and with a valve and waste pipe near the main. When the valve is closed, the waste pipe opens to allow escape of water.

Hydrate Chemical compound in which water combines with other substances, salts, etc., without alteration of the arrangement of the atoms in the water. The presence of water affects the crystalline form of the compound and may cause change of colour. The combined water is readily removed by moderate heat.

Hydraulics Subdivision of engineering. It consists of the application of the laws of hydro-dynamics to the transmission of power by means of water pressure. A herd of water, natural or artificial, may be used as a source of energy for driving machinery, such as presses, lifts, cranes, and also turbines.

Hydrocarbon Compound composed of carbon and hydrogen in various proportions. These compounds are numerous, and are obtained chiefly from petroleum, a complex mixture of hydrocarbons, and from the dry distillation of coal and similar substances. Unsaturated hydrocarbons are those which combine with other elements by addition, while saturated hydrocarbons only combine by substitution. Of the former type are the olefine series, while the saturated type are represented by the paraffins or fatty hydrocarbons.

Hydrocephalus Pathological condition popularly known as water on the brain. It is due to an inflammatory condition of the membranes surrounding the brain causing an accumulation of serous fluid in the brain cavities, or it may be congenital and developed during uterine life. It is characterised by enlargement of the head accompanied often by mental deficiency.

Hydrochloric Acid Aqueous solution of the gaseous compound hydrogen chloride (HCl). It was formerly called muriatic acid. It has long been known and at the present day enters into a number of industrial processes. It is prepared by heating common salt with sulphuric acid, the gas being collected in water, and on a commercial scale the acid forms a by-product of soda-ash manufacture. The crude impure acid is often termed spirits of salt and is used for cleaning metal work.

Hydrocyanic Acid Highly poisonous acid, also known as prussic acid. It is found in combination with other substances in bitter almonds and laurel leaves. Its chemical formula is HCN, and with bases it forms a series of salts known as cyanides. The acid is prepared by the distillation of potassium ferro-cyanide with sulphuric acid. It is very volatile and has a characteristic smell of bitter almonds. Its poisonous action is very rapid, causing death even in dilute solutions.

Hydrogen Lightest known gaseous element. It occurs in nature combined with oxygen, forming water, and uncombined in small quantities in volcanic gases. Its symbol is H, atomic weight 1.008, and boiling point, -252° C. Hydrogen is colourless, inodorous, tasteless and inflammable, burning with a non-luminous flame. It is made commercially by the electrolytic decomposition of water or other methods, and is used for inflating airships, for the hardening of oils, and in the production of the oxy-hydrogen flame.

Hydrogenation Industrial term for adding hydrogen in certain chemical processes by the use of catalysts which enable hydrogen to enter certain compounds not already "saturated" as regards that element. It is used in the "hardening" of vegetable oils, producing solid fats which can be used as substitutes for animal fats, in the production of synthetic nitrogenous fertilisers and in the production of petrol from coal, etc.

Hydrography Section of physical science dealing with the study of the oceans and other surface waters of the earth. The charting of the oceans is essential for navigation and for this work a government department is responsible. Hydrographical research is concerned also with the sounding of the depths, the distribution of temperature, salinity and many other problems.

Hydrokinetics Branch of hydro-mechanics dealing with water or other liquids in motion, which in its practical application is known as hydraulics (*q.v.*). Theoretically the fluids are supposed to be devoid of viscosity or friction, and the laws based upon them are modified to a large extent when dealing with water, which possesses viscosity.

Hydrolysis Term used in chemistry for the change which takes place in a substance by the addition of the elements of water. An example is the change from ethyl chloride to ethyl alcohol.

Hydromechanics Science dealing with the motion and equilibrium of fluids. It includes hydrostatics, hydrodynamics and hydraulics, the branch of engineering dealing with the motion of liquids.

Hydromel Drink made of honey and water. It was drunk by the Greeks and Romans, and resembled the mead.

of the Anglo-Saxons. It was often fermented and flavoured with spices or hops.

Hydrometer Instrument used for determining the relative densities of liquids. The usual type consists of a glass or thin metal bulb attached at the top to a graduated stem and below to a small loaded bulb to maintain an upright position in the liquid. The hydrometer is floated in the liquid, and the depth to which it sinks is shown on the graduated scale. Several scales are in use, chiefly those of Beaumé and Twaddell.

Hydropathic Term applied to appliances and methods appertaining to hydropathy (*q.v.*). At hydropathic establishments various forms of baths are used in addition to the usual hot and cold ones, such as hot air and vapour baths for rheumatic and nervous disorders, also douches, medicated and shower baths.

Hydropathy System of treatment of disease by means of water applied externally or internally. Although some form of water cure was used by the Greeks and Romans, the systematic treatment of disease by this method did not gain ground until the 15th century in France and the 17th in England. Hot and cold baths, cold compresses and packs, and the douche bath are external applications in hydropathy, while internally hot or cold water are employed. Hydropathy forms a valuable adjunct to ordinary medical treatment, especially in the reduction of high fever, the alleviation of local pain, and general inflammatory conditions.

Hydrophobia Disease of bacterial origin, also known as rabies. It occurs in certain animals and is transmissible to man. While the dog is most liable to the disease, it may occur in cats, horses, pigs and cattle. In man the disease has been combated successfully by the Pasteur inoculation treatment, in which the bacterial poison is weakened by the introduction into the body of an attenuated virus, causing only a mild sickness. The success of this treatment depends upon the very long incubation period of rabies. It is carried out in Paris and at St. Thomas's Hospital, London.

Hydrophone Instrument devised to detect sounds beneath the surface at sea. It was invented during the Great War for use against submarines. The receiver of the instrument is placed in the water, and the sound waves are transmitted by a flex to earphones worn by the operator. A trained listener by this means was able to hear the sound of a submarine's propellers and to distinguish between a British and an enemy vessel.

Hydroplane Type of boat constructed to skim over the surface of water when driven at a high speed. The hull is lightly constructed and the bottom is somewhat flattened.

Hydroscope A simple form of water clock or clepsidra used formerly for measuring intervals of time by the flow of running water. It consisted of a cylindrical vessel with a conical base in which was a small opening. The vessel was filled with water which was allowed to trickle slowly through the aperture, the falling level being shown by graduations on the side of the cylinder which thus indicated the lapse of time.

Hydrostatics Branch of hydro-mechanics dealing with liquids at rest under the action of forces.

Its fundamental law is that a liquid at rest transmits pressure equally in all directions, acting with the same intensity on all surfaces in contact with it and in a direction at right angles to those surfaces. This principle is applied in the action of the piston of a force pump or in the action of the hydraulic press. Hydrostatics also deals with pressure upon submerged surfaces, whether plane, curved or irregular, horizontal or otherwise, also with the problems of buoyancy of a body immersed in a liquid in relation to displacement.

Hyeres Town and watering place of France. It is 15 m. from Toulon and about 3 from the Mediterranean. About 5 m. to the east is Salins d'Hyères, famous for its salt works. Pop. 17,500.

Hygieia Goddess of health in Greek legend. She was regarded as the daughter of Aesculapius and was worshipped by the Greeks and Romans. She is represented in art with a staff on which is the figure of a serpent. Our word hygiene comes from her name.

Hygiene Science dealing with the preservation of health, personal and public. It includes such matters as diet, exercise and other methods of maintaining the normal health of the body. Public hygiene is concerned with the problems of suitable water supply, efficient drainage and other matters of sanitation, the housing question, the prevention of infectious diseases, inspection of foods and many other questions relating to the health and welfare of the community.

There is an Institute of Hygiene at 28 Portland Place, London, W. 1. The subject is also studied at the London School of Hygiene and Tropical Medicine, Euston, London, W. 1.

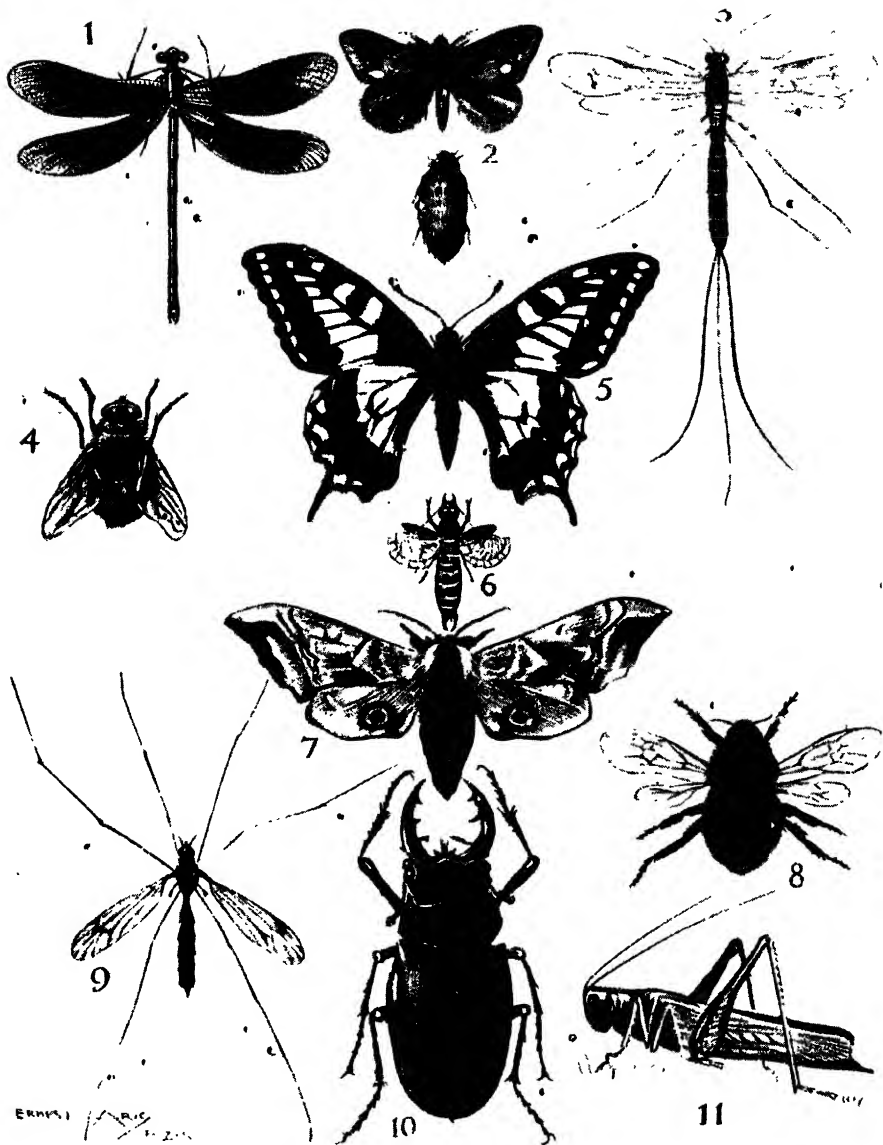
Hygrometer Instrument used for the measurement of water vapour in the atmosphere. The commonest form consists of two thermometers placed side by side, one having the bulb covered with muslin kept wet by a thread dipping into water, and, owing to evaporation, registering a lower temperature than the dry thermometer.

Hyksos Confederation of people, probably Syrian Bedouins, dominant in ancient Egypt about 1680-1580 B.C. Josephus states that these so-called shepherd kings ruled for 511 years. They were skilled archers and used horsed chariots. Their camps at Tell el-Yehudiyah and elsewhere have been excavated.

Hylas Figure in Greek mythology. He was a beautiful youth who went with Hercules on the expedition of the Argonauts. He landed and was drawing water from a well when he was drawn into it by the Nalads, and was never seen again.

Hymans Paul, Belgian statesman. He was born in Brussels in 1865 and, having attained distinction as a lawyer, was for a time professor in the University of Berlin, and wrote several books. In 1900 he was elected to the Chamber of Representatives, and in 1915 was sent as ambassador to London. In 1918 he became Foreign Minister, and represented Belgium at the Peace Conference of 1919. In 1920 he was chosen President of the first assembly of the League of Nations. In 1924-25, 1927-29 and 1929-31 he served Belgium again as Foreign Minister.

Hymen Marriage song of the Greeks. From its subject matter arose Hymen personified, the god of fruitfulness. In mythology Hymen is variously conceived as the son of Bacchus and Venus, or of Apollo and a



BRITISH INSECTS.—Showing the characteristics of the orders to which they belong. 1, Dragon Fly—*Neuroptera* ; 2, Vapourer Moth (male and female)—*Lepidoptera* ; 3, Ichneumon—*Hymenoptera* ; 4, Blue Bottle—*Diptera* ; 5, Swallow Tail Butterfly—*Lepidoptera* ; 6, Earwig—*Forficulida* ; 7, Eyed Hawk Moth—*Lepidoptera* ; 8, Bee—*Hymenoptera* ; 9, Daddy Long-legs (Crane Fly)—*Diptera* ; 10, Stag Beetle—*Coleoptera* ; 11, Grasshopper—*Cicadas*.

muse. In art he is represented as a beautiful youth, a torch bearer at nuptials.

Hymenoptera Large order of insects. Possessing four membranous wings, and mouth parts adapted for biting and sucking, they are represented by the ants, bees, wasps and gall flies. The head is short and broad, and in most cases there is a deep constriction between the thorax and abdomen. In the female the abdomen is provided with an ovipositor or a sting.

Hymn Song of praise and thanksgiving to God. Hymns were introduced into Christian worship at an early date and developed from the Psalms. The earliest were in Latin and some of these, thanks largely to John Mason Neale, are found in translations in English hymn books, of which one of the best known is the collection known as *Hymns Ancient and Modern*.

Notable hymn writers include Bernard of Clairvaux, Martin Luther, Charles Wesley, Isaac Watts, George Herbert, Milton, Cowper, Newton, Keble, Toplady, Horatius Bonar, Lyte, Newman, Baring-Gould, and Rudyard Kipling. Useful works on the subject are Julian's *Dictionary of Hymnology*, and Moorsom's *Historical Companion to Hymns Ancient and Modern*.

Hyndman Henry Mayers. English socialist. He was born in London, March 7, 1842, the son of a wealthy barrister. Educated at Trinity College, Cambridge, he spent some years in journalism and in travel in Australia and America. In 1881 he helped to found the Social Democratic Federation and for the next 30 years was a prominent leader of the movement. Three times he stood for Parliament, but without success. He died Nov. 22, 1921. Hyndman wrote many books advocating his ideas, and also *The Record of an Adventurous Life*, 1911.

Hyogo Former capital of Japan. In 1886 it was absorbed by the port of Kobe (q.v.).

Hyoscyamine Poisonous alkaloid present in the henbane belladonna and other allied plants. It is an isomer of atropine and consists of minute snow-white odourless crystals, which have the power of dilating the pupil of the eye. It is used as a sedative in nervous diseases.

Hypatia Female philosopher, mathematician and astronomer. She was born in Alexandria about 370 and killed by the mob in 415 because she was thought to have invited the prefect of the city to persecute the Christians. Her story forms the subject of a romance by Charles Kingsley.

Hyperion Figure in Greek mythology. He was one of the Titans and father of Helios, Selene and Eos. Keats wrote an unfinished poem called *Hyperion*.

Hypermetropia Condition of the eye commonly called long sight. It is remedied by using convex lenses.

Hypersthene Rock-forming mineral composed of silicate of magnesium and iron. It is found in certain andesites, dolerites and basalts. With labradorite it forms a principal constituent of the rock norite, or hypersthenoite, occurring in Scotland and North America. It is brownish-green, brown or black in colour and has a pearly or metalloid lustre.

Hypertrophy Excessive growth or enlargement of an or-

gan of the body. This may be general, as in the case of persons of abnormal stature, or partial, when a part of the body is enlarged owing to increased use.

Hypnotics Drugs which induce sleep or relieve acute pain. Those in general use are opium and its derivatives such as morphine and codeine, chloral, sulphonal and its allies trional and etional, also the bromides.

Hypnotism Method of inducing a trance-like sleep. Usually the subject is asked to look fixedly at a bright object placed at a short distance above the level of the eyes, causing a fatigue of the nerves. While in the hypnotic state he responds to suggestions made by the operator, the effects of these suggestions usually remaining after a return to the normal state. The power of suggestion has been utilised successfully in the treatment of nervous disorders, especially insomnia, defects of speech, drug habits and alcoholism.

Hypocaust Device for heating baths and houses adopted by the Romans, especially in Britain. It consisted of a series of channels or earthenware pipes carried under the floors and in the thickness of the walls to convey hot air from a charcoal furnace. In many cases the hypocaust formed a large chamber beneath the floor of a room.

Hypochlorite Salt formed by the action of hypochlorous acid upon metallic hydroxides, or of chlorine upon cold solutions of alkalis. The most important hypochlorite is bleaching powder, or chloride of lime.

Hypochondriasis Morbid condition characterised by exaggerated and unfounded anxiety regarding one's state of health. Sometimes it accompanies trivial abdominal derangements. It may take the form of an anxiety, neurosis, or be a manifestation of melancholia. Treatment necessitates psychological investigation.

Hyposulphuric Acid Acid, also called hydrosulphurous acid, formed by the action of zinc upon dilute sulphurous acid. It is a very unstable yellow liquid having the formula H_2SO_2 and with greater bleaching power than sulphurous acid, a property shared by its salts, the hyposulphites. Ordinary hyposulphite of soda or "hypo" is, however, a thiosulphite.

Hypsipyle In Greek legend a daughter of Thous, King of Lemnos. When the Lemnian women, who were neglected by their husbands for Thracian slaves, in revenge slew the Lemnian men, Hypsipyle saved her father. When the Argonauts arrived she bore twin sons to Jason, and one of these, Euneus, sent provisions to the Greeks in Troy.

Hypotenuse Side of a right angled triangle opposite the right angle. The square of the length of the hypotenuse is equal to the sum of the squares of the other two sides.

Hypsometer Instrument for measuring altitudes by determining the temperature of boiling water at a given height. It is used for checking the readings of an aneroid barometer. It consists of a cylindrical vessel in which water is boiled. Above this vessel is a jacketed cylinder to receive the steam, and in the centre is a thermometer.

Hyrax Order of tailless quadrupeds allied to the hoofed mammals. They

are about the size of a rabbit and have short fur. The toes are padded, not hooved, and the upper lip, as in some rodents, is cleft. They are found in Africa and Asia. One species inhabits Arabia and Palestine. In the authorised version of the Bible this is called the coney; the revised version calls it, marginally, the rock badger (Lev. xi.).

Hyrcanus *Johannes*. Maccabean ruler of the Jews. He succeeded his father, Simon, as high priest and is mentioned in the first book of the Maccabees. He was besieged in Jerusalem by Antiochus VII., who conquered him. When his overlord died he overran Samaria, destroyed the rival temple on Gerizim, reduced and Judaized the Idumaeans and consolidated his father's alliance with Rome. He then established the dynasty which preceded the Herodian. He died 105 B.C. His sons Aristobulus and Alexander and his grandson, Hyrcanus II., bore the title of king.

Hyrieus In Greek legend, the reputed King of Ilyria, near Aulis in Boeotia. He employed Agamemnes and Trophonius, sons of the neighbouring King of Orchomenos, to build him a treasure house, into which they introduced a secret opening to facilitate robbery. Hyrieus, however, proved too clever for them and the end of both was disastrous.

Hyssop Small perennial aromatic plant (*Hyssopus officinalis*) with bluish flowers and lance-like leaves. Though a native of the Mediterranean it is not the hyssop of the Bible, which was probably a species of thyme.

Hystaspes Persian prince. A son of Darius I., he lived in the 6th century B.C. Relinquishing his claims to the Persian throne, he was provincial governor of Parthia under his son, as recorded at Behistun. He is sometimes confused with the earlier semi-legendary

Bactrian King Vishtaspa, Zoroaster's patron, who figures as Kai Gushtasp in Firdausi's *Shah-Nameh* and other mediæval romances.

Hysteria Functional nervous affection involving no recognisable diseased change. It may be marked by unstrained desire for attention and sympathy, convulsive seizures, spasms and contractions, paralyses, partial losses of sensation and derangements simulating various organic diseases. It may result from mental or physical shock or be encouraged by hereditary predisposition. It is more prevalent in Latin than northern races, and occurs in women 20 times oftener than in men. Treatment by sympathetic firmness is more serviceable than drugs.

The condition known as *Hysterics* occurs in persons of a highly nervous temperament, who are sometimes subject to fits of hysterical weeping, rage or laughter, or the fit may simulate fainting, though the face does not usually become pale nor the pulse feeble. The patient should receive as little encouragement as possible, and may usually be left to recover by herself, though sometimes a sharp reprimand may be sufficient to restore balance. Radical treatment is by psycho-analysis.

Hythe Borough and watering place in Kent. It is 67 m. from London and 4 from Folkestone on the S. Rly. St. Leonard's church has a raised chancel and a crypt containing a huge collection of human skulls. There are two old hospitals, St. John's and St. Bartholomew's. Hythe, in the Middle Ages, was one of the Cinque Ports. The harbour has become partially blocked. The British army school of musketry, which was here for many years, is now the School of Small Arms. A canal built for military purposes flows through the town. Pop. (1931) 8397.

Another Hythe is in Essex. It is 3 m. from Colchester and serves as its port. A third Hythe is a Hampshire village, 6 m. from Southampton.

IACCHUS Another name of Bacchus, the god of wine. It is derived from the cry of rejoicing used by his worshippers.

Iambic Verse form based upon metrical feet, each containing a short or unaccented and a long or accented syllable. Characterising the hexameters of Greek tragedy, it occupies a high place in English poetry. Notable examples include Pope's five-syllabled rhymed heroic verse, Shakespeare's unrhymed blank verse, and Tennyson's four-syllabled measure in *In Memoriam*.

Iapetus In Greek legend one of the Titans. With the others he was defeated by Zeus and imprisoned in Tartarus. Iapetus is also the name of one of Saturn's moons. It was discovered in 1671, and takes 79 days to travel round the planet.

Iberia Greek name for the peninsula of Europe, now comprising Spain and Portugal, and still designated the Iberian peninsula. A range of mountains in Spain is called the **Iberian Mountains**. The name is also given to a mountainous region between the Caucasus and Armenia.

Ibex Wild goat of the Alps, also called the steinbok or bouquetin. It has long, curved horns and its average measurement is about 1½ ft. Naturalists recognise allied forms called Himalayan, Arabian and Abyssinian ibex; sportsmen extend the name loosely to Pyrenean, Nilgiri and other wild goats.

Ibis Family of slender-billed wading birds related to the spoonbills and storks. They have bald, black heads and necks and are found nearly all over Africa. Allied species live in Japan and Australia. There is a European form which sometimes strays to Britain. The bird is about 30 in. long. It was sacred to the Egyptians.

Ibn Sa'ud Arabian monarch. Born about 1880, Abdul Aziz Ibn Sa'ud, having recovered Riyadh, the capital of the Nejd, from the Turks in 1901, developed the Be'atunis from wandering tribes into settled agricultural communities. By 1914 he had taken further territory from the Turks, and the balance of the country fell to him as leader of the Wahhabis during and after the Great War. He now rules the kingdom of the Hejaz and the Nejd.

Ibrahim Pasha Egyptian general. Son of Mahomed Ali Pasha, ruler of Egypt, he was born in 1798. Accorded a triumphal entry into Cairo in 1809 on returning from a successful campaign in Arabia against the Wahhabis, he was successful against the Greeks in 1825 and against the Turks in Syria in 1832, where he remained as governor until European powers intervened. He died Nov. 10, 1848.

Ibsen Henrik, Norwegian author. Born March 20, 1828, he was a son of Knud Ibsen, a merchant. His father fell on evil days and the son was apprenticed to a chemist. Soon he began to write, and in 1850 his first play, *Cathina*, was published. By then he was living in Christiania and he was soon earning a livelihood by his pen. In 1851, having taken a keen interest in the theatre, he was made director of one at Bergen, and in 1857 he

was chosen to direct the national theatre just opened at Christiania. For these he wrote his early plays. After a few years there he was in a position, state help being now given to him, to travel, and he passed some years abroad, chiefly in Germany. In 1891 he returned to Norway and he lived there, mainly at Christiania, until his death, May 23, 1906.

As a dramatist Ibsen ranks with the greatest. Bernard Shaw did much to make him known in England, and his plays have been translated into English by William Archer. The best of these are *The Warriors in Helgeland*, *Brand*, *Peer Gynt*, *The Pillars of Society*, *A Doll's House*, *Ghosts*, *An Enemy of the People*, *The Wild Duck*, *Rosmersholm*, *Hedda Gabler*, *The Master Builder*, and *When We Dead Awaken*.

Icarus Figure in Greek legend. He was a son of Daedalus who took him with him on his flight from Crete. As they were passing over the sea Icarus fell and was drowned.

Ice Solid state of water. It is a colourless substance crystallising in the hexagonal system, of which hoar-frost, snow and hail are forms. The temperature 0° C. (32° F.) is defined as the temperature of melting ice; when saline impurities are present the melting point is lower. Water expands when freezing, and ice floats on cold water. Artificially prepared ice is largely used industrially. See **REFRIGERATION**.

Ice Age Period of intense cold occurring after the deposition of the Tertiary beds. It was marked by the prevalence of great ice sheets and glaciers over the greater part of Britain and north-west Europe. Glaciation spread also to parts of Southern Europe and over the northern area of North America. The deposits of this period are boulder clays and tills, including stones and boulders polished and scratched by ice-action. There are indications that man was contemporary with the later part of the ice age.

Iceberg Mass of ice which has become detached from the ends of great glaciers in the Polar regions. Although icebergs in the Arctic are usually of great height, only one-ninth of the volume of ice floats above water.

Ice Breaker Special type of steamer used for navigation of ice-bound waters. It is employed particularly in the Baltic Sea, Lake Baikal, and parts of the Arctic Ocean. The steel-clad bows slope upwards so as to slide over and crush the ice by the weight of the vessel.

Iceland Island in the Atlantic Ocean. It lies about 200 m. south-east of Greenland and covers 40,000 sq. m. Much of it is mountainous and a good proportion is covered with snowfields. The highest mountain is over 6000 ft. high, and there are some active volcanoes, notable Hekla. Iceland is also famous for its hot springs, or geysers. In the north-west is a peninsula and on the south are the Vestmanna Islands.

Iceland is a sovereign state under the King of Denmark. A union with Denmark grants certain privileges to citizens of both countries, but this is only temporary. The parliament is called the Althing and is divided into two houses. Members of the lower house are elected by all men and women who are over 25 years

old. A ministry of three under a president forms the executive. For local government purposes the country is divided into 16 provinces and there are seven municipalities. Iceland has a judicial system with a court of appeal in the capital. The people are Lutherans. There is a university at Reykjavik, the capital. There is neither army nor navy.

The inhabitants are chiefly engaged in agriculture and fishing. The chief crop is hay and the fisheries are mainly cod and herring. Sheep and horses are kept. There are no railways but some good roads. Iceland has a national bank. The money, weights and measures are the same as in Denmark. Pop. 103,500.

From 930 to 1264 Iceland was an independent republic. In 1263 it came under the rule of the king of Norway and the two passed together to Denmark in 1381. In 1918, after a long agitation, it was granted its present position of independence.

Iceland Moss *Lichen (cetraria islandica)*, growing abundantly in Arctic and Antarctic climates and in the higher mountain regions of Britain. It is a brownish or greyish moss-like plant and grows about 3 in. high. It forms a starch used for sizing. When boiled to a jelly and deprived of its bitter purgative principle, it is an agreeable foodstuff.

Iceni Tribe living in Britain when it was invaded by the Romans. Their homes were in Norfolk and Suffolk: they revolted with Boadicea.

Ice Pack Mass of broken fragments of ice derived from the disintegration of icebergs or floes in the Arctic and Antarctic Oceans. The pack ice in the Arctic is dense enough to prevent navigation except in the Greenland, White and Barents Seas, and near the northern coastline.

Ice Plant Annual herb of the fig-marigold order. It is indigenous to the Mediterranean region, the Canary Islands and S. Africa. It is a half-hardy dwarf trailer whose fleshy stem and leaves are sprinkled with pellucid watery vesicles stimulating ice granules. In Great Britain it is grown chiefly in greenhouses. The Canaries export its ash for glassmaking.

Ichabod Son of Phinehas and grandson of Eli (1 Sam. iv.). His mother, hearing that her husband and father-in-law were dead, Israel defeated and the ark taken, exclaimed, as she was giving birth to the child at the cost of her own life, *Ichabod, the glory is departed from Israel*. Whittier's poem *Ichabod* was inspired by the anti-slavery agitation.

Ichang River and treaty port of China. It stands on the Yang-tse-Kiang, nearly 1000 m. from its mouth, and is 270 m. from Hankow. Pop. 60,000.

Ich Dien Motto on the arms of the Prince of Wales. It means, *I serve*, and is placed beneath the device of three ostrich feathers. It has been borne by the Princes of Wales for some 600 years.

Ichneumon Small carnivorous mammal common in the valley of the Nile. It preys on snakes and has a partiality for crocodile's eggs.

The *ichneumon fly*, a small insect belonging to the hymenoptera, is parasitic in its larval stage upon caterpillars. The eggs are deposited in the body of the host by the adult insect.

Ichor Word used by the Greeks for the fluid that ran in the veins of gods, the equivalent of blood in human beings. In

medicine it describes a watery discharge from a wound or ulcer.

Ichthyology Branch of the science of zoology, dealing with the study of fishes. It is concerned especially with the classification, distribution and habits of living species. See *Fish*.

Ichthyosauria Order of extinct reptiles found in strata ranging from the Upper Trias to the Upper Cretaceous in many parts of the world. Some were small; others up to 40 ft. in length. The *Ichthyosaurus* had a fish-like body, no neck, large head with teeth, long tail and paddle-like limbs.

Icknield Way Early English name for a prehistoric British trackway, over the Berkshire Downs and Chiltern Hills from Wantage to Dunstable. The supposition that it continued into Norfolk lacks evidence. Another road system, running from Stow-on-the-Wold through Lichfield, Leicester and Chesterfield towards Aldborough, was called by earlier antiquaries, Icknield Street.

Icon Painting or bas-relief used in the Greek Church. They depict sacred subjects. Icons are carried on the person or may be found on the iconostasis, or rood screen, of churches.

Iconoclast Image breaker. It refers specifically to one who was hostile to the use of pictures and images in Christian worship as tending to idolatry. Violent controversies on this subject arose after the 4th century. In 726 the eastern emperor, Leo III., began a campaign for overthrowing images which Constantine V. followed up with a decree. The Puritans who destroyed many of the ornaments of the churches in the 17th century are sometimes called iconoclasts.

Idaho State of the United States. In the north-west of the country, it covers 83,400 sq. m. The Rocky Mts. enter it. The chief river is the Snake. A good deal of the soil is devoted to crops and there is also much mining. Large irrigation works have been made to overcome the natural dryness. Boise is the capital, but there are no large towns. The state legislature consists of two houses. Two senators and two representatives are sent to Congress. Pop. (1930) 415,032.

Iddesleigh Earl of. English politician. Stafford Henry Northcote was born Oct. 27, 1818, and educated at Eton and Oxford. He entered political life as private secretary to W. E. Gladstone. In 1851 he became a baronet; in 1855 an M.P., and in 1859 he was financial secretary to the treasury. In 1866 he was president of the board of trade, and in 1867-68 secretary for India. In 1874 he was made chancellor of the exchequer, and in 1876 he succeeded Disraeli as leader of the House of Commons. In 1880 he left office, but he continued to lead the party until 1885 when he was made an earl. He had represented North Devon since 1866. He was first lord of the treasury for a short time in 1885, and in 1886 foreign secretary. He resigned just before his death, which took place suddenly in Downing Street, Jan. 12, 1887.

Iddesleigh was succeeded by his eldest son, who died in 1927. As the latter's son, Viscount S. Cyres, the historian, had predeceased him, he was succeeded by a nephew as third earl. The family seat is Pynes, Exeter, and the earl's eldest son is called Viscount S. Cyres.

Idealism In metaphysics a doctrine that the only real existence

is the idea, the intellectual perception, and that the material substance is dependent upon the idea. The idea may be defined as the image of an external object formed by the mind. The theory was enunciated by Plato and elaborated by Descartes with his famous dictum, *I think, therefore I exist*. Adopting this central principle, a school of philosophers arose, among whom Berkeley and Hegel were prominent, and they gave the idealistic philosophy the dominance which it retained throughout the 19th century. Idealism is also used, generally, for a state of perfection.

Ides One of the divisions of the month in the Roman calendar. The Ides begin on the 15th of the month in March, May, July and October, and on the 13th in the other months.

Idiot One deficient in intellect. The accepted difference between an idiot and a lunatic is that the idiot is feeble minded at birth, whilst the lunatic becomes so. Both, however, are dealt with under the lunacy laws. See LUNACY.

Idle River of Nottinghamshire. A tributary of the Trent, it rises in Sherwood Forest and flows across the county to West Stockwith on the Lincolnshire border. Its length is 40 m.

A district of Bradford is called **Idle**.
Idolatry Worship of images or other objects as representing superhuman personalities. More advanced than animism and nature worship, it is absent from some primitive cultures, e.g., Eskimo. In the Old Testament the term denotes the worship of any representation, whether of Jehovah or of the false gods of the non-Jewish world. Modern Judaism, Christianity and Islam regard as idols all objects of worship, public, family or personal, in polytheistic systems, whether they are the abodes of subsidiary or departed spirits, e.g., negro fetiches or Maori images or personified deities, e.g., Vishnu, Siva or religious leaders, e.g., Buddha. See IMAGE WORSHIP.

Idomeneus In Greek legend, the son of Deucalion and king of Crete. Fighting for the Greeks in the Trojan war, he encountered a storm when returning home, and vowed to sacrifice to Poseidon, if saved, whatever he first met on landing. The victim was his own son, on whose death plague visited the island.

Idris Figure in Welsh tradition. He is believed to have been a king and to have had his seat or throne on the mountain called after him, Cader Idris, in Merionethshire.

Idyll Originally a short poem picturing pastoral life. It is now used for a poem written in simple graceful style and dealing with pastoral subjects.

Ifney Village of Oxfordshire. It is on the Thames, 2 m. from Oxford. It has a famous Norman church.

Iglloo Primitive type of dwelling built by the Eskimos for residence during the winter. Usually dome-like in shape, the igloo is constructed with pieces of ice or frozen snow.

Ignatius Saint and father of the Church. He was born in the 1st century A.D., but little is known of his life. He may have been associated with S. John. He became Bishop of Antioch, but at some date between 107 and 138 he was taken as a prisoner to Rome. Tradition says he was thrown to the lions as a Christian.

Ignatius Father. Angelican monk and preacher. Born at Barking,

Nov. 23, 1837, his name was Joseph Leycester Lync. In 1860 he was ordained in the Church of England, and although remaining in that church he founded a house for Benedictine monks at Llanthony in South Wales. He won fame, however, by his preaching, which was extraordinarily powerful and attracted vast crowds. He denounced modern tendencies in theology and all departures from the old-fashioned orthodoxy. He died Oct. 16, 1908.

Ignis Fatuus Faintly luminous flame which hovers sometimes over marshy places or where decomposition of organic matter under water occurs. It is popularly called Jack o' Lantern or Will o' the Wisp.

Ignorantines Religious order in the Roman Catholic Church. It describes the Brothers of the Christian Schools, an order founded at Rheims in 1680. The Brothers take monastic vows, but are not priests. They devote themselves to the education of boys and many schools are under their control. Their headquarters are at Mountrath in Queen's County, Ireland, and one of their largest schools is at Norwood, London. They were called Ignorantines because no theologically educated priest could enter their order.

Iguana Large family of lizards, mainly American, but represented in Madagascar and Fiji. The tropical American *I. tuberculata*, with spiny crest along the back and large dewlap, is an herbivorous tree dweller. It is about 6 ft. long, and its flesh and eggs are edible. Other iguana-like reptiles are basilisks and horned lizards; the Galapagos Archipelago has marine forms.

Iguanodon Extinct reptile of the group of dinosaurs. Its remains are found in Jurassic and Wealden strata. It ranged in length from 14 to 30 ft., and supported itself on its hind limbs and massive tail like a kangaroo. The jaws were provided with serrated teeth like those of the iguana.

Iguassu River of Brazil. It is chiefly in the State of Parana, and flows into the Atlantic Ocean. It is noted for its falls, among the finest in the world. They are used for generating electric power.

Ilchester Market town of Somerset. It stands on the Ye0, 5 m. from Yeovil, and was the birthplace of Roger Bacon (1214). Ilchester was made a chartered town in the Middle Ages and until 1832 sent two members to Parliament. For many years it was the county town of Somerset. Its corporation was dissolved in 1886. Pop. 500.

The title of Earl of Ilchester is borne by the family of Fox-Strangways. The 1st earl was Stephen Fox, M.P., a younger son of Sir Stephen Fox, who was created an earl in 1756 and took the additional name of Strangways. Henry Fox, Lord Holland, was his elder brother and a later earl inherited Holland House, Kensington. His son is Melbury House, Dorchester, and his eldest son is called Lord Stavardale.

Ile de France Name used at one time for a district round Paris. It was so called because it was bounded by the Seine and other rivers. Later, it became a province and so it remained until the Revolution. The French gave this name to the Mauritius when it was in French possession between 1715 and 1815.

Ile du Diable Island of French Guiana. Forming with two others

small ones the Safety Islands, it lies 27 m. off the coast near Cayenne. Part of the penal settlement, it is used for the more serious cases. Dreyfus was here for a time.

Ilex Large genus of shrubs and trees of the holly order. It is widely distributed in both hemispheres, especially in S. America. The most important economically is *I. paraguariensis* which yields maté, or Paraguay tea, of which much is exported. The common holly is *I. aquifolium*; others in cultivation are the inkberry and winterberry of N. America, and several from Japan. See HOLM OAK.

Ilford Borough of Essex. Part of Greater London, it is 8 m. from the city. S. Mary's Hospital, founded as a leper house, was later an almshouse. Ilford was made a borough in 1926, and sends one member to Parliament. Photographic materials are manufactured here. Pop. (1931) 131,046.

Ilfracombe Watling place, market town and urban district of Devon. It is in the British Channel, 225 m. from London and 12 from Barnstaple, and is reached by the S. Rly. There is a harbour and a little shipping, but the place is chiefly visited for the beautiful scenery around. Capstone Hill and Lantern Hill overlook the town. Pop. (1931) 9174.

Iliad The. Poem by Homer. It deals with the events that occurred during the 10th and last year of the siege of Troy, or Ilium, by the Greeks. It begins with the wrath of Achilles, who refuses to take any further part in the fighting. Led by Hector, the Trojans are successful until Achilles changes his mind and again enters the field. The Iliad is in 24 books, and there are many English translations.

Ikeston Borough of Derbyshire. It is situated on the Erewash, 9 m. from Derby, on the L.M.S. and L.N.E. Rlys. Lace and hosiery are manufactured, and there are coal mines. It was made a borough in 1887. Pop. (1931) 32,809.

Ilkley Urban district and watering place of Yorkshire. It is on the Wharf. 16 m. from Leeds, on the L.M.S. and L.N.E. Rlys. It is visited for its mineral springs, and also for the surrounding scenery. Beauty spots near include Wharfedale and Bolton Abbey. Pop. (1931) 9721.

Illampu Mountain of Bolivia. It is 60 m. from La Paz and overlooks Lake Titicaca. The highest point of the eastern Cordillera, the height of its chief peak is 21,490 ft. It has been climbed.

Illawarra District of New South Wales. It lies along the coast, about 40 m. to the south of Sydney, and is a fertile area given over largely to dairy farming. A railway runs along it to Illawarra Lake, a lagoon connected by a channel with the sea. In the district are two urban centres, North Illawarra (Pop. 7000) and Central Illawarra (Pop. 6000).

Illegitimacy Opposite of legitimacy. It is generally used for children born out of wedlock, and from time to time statistics of illegitimacy are issued. In England it is now possible, as has long been the case in Scotland, for children to be made legitimate by the subsequent marriage of the parents. See LEGITIMACY.

Illinois State and river of the United States. In the north of the country, the state lies to the west of Lake Michigan and is 56,600 sq. m. in area. Spring-

field is the capital, but Chicago is the largest place. Other cities are Peoria, East St. Louis and Rockford. Its rivers are the Mississippi, Ohio, Illinois and Wabash and the land is very fertile. Coal is the chief mineral produced. It sends two senators and 27 representatives to Congress. Illinois became a state of the union in 1818, and is sometimes called the prairie state. Pop. (1931) 7,630,654. The river after which the state is named is a tributary of the Mississippi.

Illiteracy Condition of ignorance, generally inability to read or write. The spread of education has almost abolished illiteracy in Great Britain, France, Germany and North America, but there is still a good deal in the southern and eastern countries of Europe; also in Asia, Africa, and South America. In 1931, for instance, it was stated that well over 50 per cent. of the inhabitants of Portugal were illiterate.

Illumination Term applied in art to the ornamentation of manuscripts or books by miniature paintings or designs. In the early Middle Ages, missals, gospels, and other manuscripts, were enriched by illuminated initials usually in gold, purple and red, in addition to designs or small groupings of figures of men or animals forming marginal scrolls to the page. The invention of printing with its mechanical multiplication of copies, however, brought the golden age of illumination to a close.

Illustration In rhetoric an illustration or rendering clear a statement made.

In art the illustration of written or printed matter takes the form of pictures, diagrams, photographs, or in the older manuscripts by illumination.

Illustration of books by woodcuts date from the end of the 14th century, and line engraving on copper and other metals followed in the first part of the next century. Steel engraving lasted until the middle of the 19th century, when this process, along with woodcuts, was superseded gradually by the modern and cheaper process methods of preparing illustrations for books and periodicals.

Ilorin Town of Nigeria. It is 250 m. from Lagos and is a prosperous trading place; there are also manufactures. Pop. 70,000.

Ilyria Province of the Roman Empire. In south-eastern Europe, it covers the district now known as Bosnia, Herzegovina, Dalmatia and Montenegro. It was inhabited by a warlike race, who, for a few years, were under the kings of Macedon. In 229 B.C. the Romans conquered them and in 168 included their land in the Empire, but the province of Ilyria was not formed until A.D. 9. After the fall of the western empire the name was lost, but from 1815 to 1848, there was a province of Ilyria in Austria.

Ilmenite Titaniferous iron mineral forming the principal ore of the metal titanium. It contains iron and titanium oxides in varying proportions and occurs as iron-black scales or in large veins in igneous rocks in Norway and Canada. As an alluvial black sand it is found in New Zealand.

Ilminster Urban district and market town of Somerset. It is 5 m. from Chard and 149 m. from London by the G.W. Rly., and is situated on the river Isle. Bricks are made, and it is a centre of the flax trade. Pop. (1931) 2232.

Image Term used in optics for the optical counterpart or picture of an object produced by reflection from a mirror or by refraction by a lens. An image may be either real or virtual. In the former case rays of light come from the points of the image, while in a virtual image they only appear to do so.

Image Worship Homage rendered in worship to graven, pictorial or other representations of sacred persons or things. The Roman Catholic Church permits the veneration of images of Christ, the Virgin Mary, and the saints. The Orthodox Eastern Church applies the same principle to icons and pictures. Protestants to-day are inclined to recognise representative art where no idolatrous intention is involved. The Jews and Mohammedans exclude it altogether. See **ICONOCLAST**.

Imago Final adult stage in the metamorphosis of an insect. The imago is provided usually with wings and its life is devoted to reproduction.

Imam Arabic word for guide. It was employed for various Mohammedan princes, such as the early caliphs, and is still used for the Imam of Yemen, the 12 leaders of the Shiah sect and the four great doctors of the orthodox sects. It applies also to the person who leads the Friday prayers in the mosque.

Imari Seaport of Japan. It is 35 from Nagasaki and is chiefly famous because it gives its name to a kind of porcelain. This was made in the 17th century and was taken by Dutch traders to Europe. On it were painted designs in blue, red and gold.

Imbros Island of Greece. It is in the Aegean Sea, near the entrance to the Dardanelles. It covers about 100 sq. m. and the chief town is Castro. The island was long a Turkish possession, but was assigned to Greece in 1920, and restored (demilitarised) to Turkey by the Treaty of Lausanne (1923). Pop. 10,000.

Immaculate Conception

Dogma that the Virgin Mary was conceived without original sin. S. Bernard repudiated the sinless view in 1131, and Duns Scotus and the Franciscans maintained it, 1307. Aquinas and the Dominicans took the contrary view. The Council of Trent left it unsettled, but Pope Pius IX. declared it a dogma of faith in 1854. The Roman Catholic Church celebrates the feast of the Immaculate Conception on Dec. 8; the Eastern Church, rejecting the Western dogma, celebrates the Conception of S. Anne, the Virgin's mother, Dec. 9.

Immanence Pantheistic theory that the creative and intelligent power of the universe is indwelling within the universe itself and not above or beyond it.

Immanuel Hebrew proper name meaning *God is with us*. It was given to a child foretold in prophecy (Is. vii.), and was applied to the child Jesus (Matt. i. 1). A variant spelling is Emmanuel.

Immigration Entrance of people into another country for the purpose of settling there; it is thus the opposite of emigration. There was a great deal of immigration into the North American continent in the 19th century, but towards the end of that period steps were taken to restrict it. The restrictions were at first directed to

keeping out the coloured races whose standard of living was lower than that of the white man. Australia, Canada, and the United States took steps to restrict the number of coloured immigrants, these amounting in some cases to almost total exclusion.

The difficulty of finding employment was one of the reasons that led certain countries to restrict the immigration of the white races, and now almost every country takes measures to keep out all who are considered undesirable, either on grounds of poverty or disease. The restrictions in the different countries vary, but, in general, intending immigrants must possess a certain amount of money, pass a medical test and also prove literacy.

Since 1921 the United States has had a system of quotas in its immigration policy. Each year a quota, based on the number already in the country, is fixed for each nation. Provided they pass the tests immigrants up to that number are allowed to enter, but as soon as it is reached immigration from that particular country is stopped for the year. The number allowed varies. In 1929, for instance, it was 65,721 for Great Britain and 25,957 for Germany. The figures are, of course, exclusive of those who visit the country for business or pleasure.

In Great Britain there were practically no restrictions on immigration before 1905, and a great number of aliens, many of very low character, made their homes in the country and were responsible for reducing the standard of life in certain industries and areas. In 1905 restrictions were placed on their entry and there is now a branch of the Home Office charged with the duty of keeping out undesirable aliens. See **EMIGRATION**.

Immingham Seaport of Lincolnshire. It is 5 m. from Grimsby, and was made a port in the 20th century, when the Gr. Central Rly. built docks here. These cover 56 acres and belong to the L.N.E. line. Much coal is shipped. Pop. 27,000.

Immortality Condition or quality of being exempt from death or annihilation. Confidence in the continuance of human existence beyond the grave is almost universal, and is traceable to primeval man. It is incapable of proof, but speculation has endeavoured throughout human history to pierce the veil. The pantheistic view of reabsorption in the universal life, as through the Buddhist nirvana, and the positivist view of corporate rather than individual survival, do not satisfy those who regard immortality as essentially involving perpetuation of the personal consciousness.

This idea of personal immortality finds support in the aspirations of the human mind in its capacity to project itself beyond the present life and time, and in the belief that the purpose of the created universe cannot be fulfilled without it. On the other hand science gives no credence whatever to the idea, although it does not rule out some kind of corporate immortality, of an absorption into an eternal and omnipresent mind. Spiritualism, it must be said, has not thrown much light on the question. The Christian doctrine looks for fellowship with the Eternal through the resurrection of Jesus Christ.

Immunity Term applied to the power of resistance in the bodies of animals to disease. This immunity is either natural or acquired. In natural immunity the blood develops anti-toxins which neutralise the bacterial toxin, immune bodies which

destroy microbes, and leucocytes which devour the germs. Vaccination and inoculation are methods adopted to acquire immunity.

Impaling In heraldry to place two coats of arms on one shield. They are usually placed, or marshalled, side by side. The chief occasions for impaling arms were marriages.

Impeachment In Great Britain a prosecution by the House of Commons before the House of Lords of the supreme court of law. It is now practically obsolete, but the power to impeach remains.

Impeachment was confined to persons of rank who had committed an offence against the state. The first recorded impeachment was that of Lord Latimer in 1376; the most famous that of Warren Hastings. The last case was in 1806 when Henry Dundas, Viscount Melville, was impeached. The United States has a similar form of procedure, the House of Representatives prosecuting before the Senate.

Imperial College of Science and Technology. Educational centre at South Kensington, London. It dates from 1907, and consists of the Royal College of Science, the Royal School of Mines, and the City Guilds (Engineering) College. It has a strong staff of professors and lecturers, and its equipment is of the most modern kind. It is a school of the university of London.

Imperial Conference Meeting of representatives of the various self-governing parts of the British Empire. The first was held in 1887, and for some time these were called Colonial Conferences. Since 1907, except for the war years, they have been held every four years, the last being in 1930. The conferences are held in London, the Secretary for the Dominions being chairman. They are attended usually by the premiers and other ministers of state. In addition to these meetings, conferences on particular subjects, e.g., defence and economics, are held from time to time.

Imperial Economic Committee British government committee. First appointed in 1925 in accordance with proposals at the Imperial Economic Conference, 1923, and continuing from one conference until the next, its duties are to investigate the development and marketing of empire produce suitable for the British market. The Empire Marketing Board was founded as its executive body.

Imperial Defence Defence of the British Empire in time of war. The necessity of framing some joint policy for the defence of the British Empire led to the association of the Dominions with the mother country in consultation and action. The matter was discussed at Imperial conferences and a committee of Imperial defence was set up in London. This is concerned with the activities of the three arms, army, navy and air force throughout the whole Empire. Its offices are in Whitehall Gardens, London, S.W.1.

Imperial Institute Building in South Kensington, London. A fine edifice in the Renaissance style, it was erected to mark the jubilee of Queen Victoria's reign in 1887. It was opened in 1893 and in 1900 became the property of the Government. It is controlled by an executive committee under the general direction of the Secretary of the Dominions and has a director

and a staff. Since 1925 the Imperial Mineral Resources Bureau has been incorporated with it. The work of the institute is to make known the products of the various parts of the Empire, and to conduct researches into their respective uses and values. Part of the building is the temporary headquarters of the university of London.

Imperial Preference British politico-economic conception. The movement began in Canada, where in 1898 the administration of Sir W. Laurier (q.v.) abandoned general reciprocity in trade for a policy of British preference in the granting of tariff concessions. Development of this policy, which was implemented at the Imperial Conference of 1902, had been slow, pending the change (1931-32) in the British fiscal system from free trade to protection. Some progress was made, however, during the Great War, and British preferences were enlarged under the Safeguarding of Industries Act, 1921. Apart from primary foodstuffs, motor-cars of Canadian manufacture, for instance, enjoyed preferential rates, while under the Safeguarding Act of 1925 Imperial preference was attached to such products as cutlery, silver and silk, the Dominions meanwhile continuing to enlarge the preferential range.

Imperial preference should not be confused with **Empire Free Trade**, a political slogan introduced in 1930, expressing an ultimate aim, but ignoring the immediate need of the Dominions to protect their growing industries—a consideration which tends to limit the indefinite expansion of Imperial preference.

Imperialism Term used for the movement that aims at the strengthening of the British Empire. It was much used towards the close of the 19th century, its opposite being Little Englander. Lord Beaconsfield was regarded as a great Imperialist. Sir J. R. Seeley helped the movement by writing *The Expansion of England*. Its opponents regard imperialism as involving aggression, and, perhaps, injustice towards weaker peoples.

Imperial Service Order British decoration given to members of the civil service. It was established in 1902 and enlarged in 1912. It is given to members of the administrative and clerical branches of the civil service. The number of members must not exceed 700. Of these, 250 are for the home services, 250 for the services of the Dominions, colonies and protectorates, and 200 for the Indian services; the 200 are divided into 100 for Europeans and 100 for Indians. The ribbon of the order is crimson with a blue centre.

Imperial War Museum London museum. It was opened at the Crystal Palace in 1920 and was removed to its present home in Imperial Institute Road, South Kensington, in 1924. The collection includes naval and military trophies and relics, ordnance, small arms and ammunition, ships and other models, works of art, photographs, prints, books and pamphlets. The aeronautical collection is in the Science Museum.

Imports Name given to the goods that come into a country by way of trade. They are thus the opposite of exports. In Great Britain and most other countries, the value of the imports is calculated by

officials at the ports of entry and figures are issued from time to time giving the totals. Most countries levy duties on imported goods.

Imports may be divided into manufactured goods, raw materials and foodstuffs. In Great Britain the value of the imports is always considerably greater than the value of the exports. The difference is the balance of trade as it is called. This is paid by invisible exports, such as shipping dues and insurance charges, whilst part of it consists of goods, which are in effect interest on money lent abroad.

Nearly all countries tax imports, Great Britain joining the number in 1932 with taxes on certain manufactured goods and foodstuffs. See BALANCE OF TRADE; TARIFF.

Imposition Something placed on a person or thing. It is most often used for a tax, especially a tax that is regarded as unjust. Duties on certain imports levied by James I. in 1606 were called impositions, and were resisted by a merchant called Bate and others. In 1610 Parliament declared impositions illegal.

The word is also used for a task given to a schoolboy, as a punishment, as well as in printing.

Impostor One who seeks to obtain something by pretending he is someone else. There are historical impostors such as Perkin Warbeck (died 1499) and those who pretended to be the son of Louis XVI. of France. More recent impostors are the German, who called himself the captain of Kopenick and De Rougemont. Another class of impostor consists of those who pass off the writings of others as their own.

Impotence Lack of power. It is usually applied in cases where husband or wife is unable to consummate a marriage. In English law a marriage can be annulled if impotence is proved.

Impressionism Modern school of painting. It originated in France in the latter part of the 19th century, and is associated with the names of Edouard Manet and Claude Monet. Other painters of this school were Boudin, Degas, Renoir, Pissarro, Morisot, Cézanne and Sisley. The Impressionists claimed freedom from all artistic tradition with its conventional methods of lighting and composition, and they attempted to portray the truth of their impressions of nature by the use of pure colour and luminosity. They used pure primary colours and obtained their effects by placing small spots of colour side by side. Exhibitions of Impressionist paintings were held in Paris in 1867, and in London in 1882 and 1889.

Imprisonment Detention in a gaol, or prison, for an offence against the law. In English law there are three kinds of imprisonment. Penal servitude is a punishment for serious offences and may be for life, which in practice is 20 years. Imprisonment with hard labour is for less serious offences; it cannot exceed 10 years. Ordinary imprisonment for minor offences is of three kinds. The person sentenced may be a first, second or third division prisoner. First and second division prisoners have an easier term than ordinary prisoners.

In-Breeding Method of breeding by mating nearly related subjects. It is contrasted with line breeding, in which individuals mated are within a single line of descent, and with out-breeding, or the

mating of unrelated subjects. In-breeding is resorted to in order to establish or fix certain desired characters, although it involves ultimately certain disadvantages such as deterioration, diminished resistance to disease, and sterility.

Inca Name meaning a member of the ruling class in Peru in the 13-16th centuries, but applied more generally to their wonderful civilisation. The Inca Empire, created about 1230, covered the modern Peru and part of Bolivia and Chile, an area 2000 m. long and some 500 wide. Its capital was Cuzco. It lasted until 1533 when Pizarro overthrew it. Its history has been recorded by a Spaniard, Garcilaso de la Vega.

The remains of the Inca civilisation are very wonderful. They include the ruins of palaces and temples, as well as statues and sculptured decorations. The Incas made good roads and had considerable knowledge of agriculture. They irrigated and manured the soil; and their social and economic life was far from primitive. They worshipped the sun.

Incantation Form of words of supposedly supernatural power, chanted or intoned ceremonially. Incantations are common to all primitive beliefs. The earliest known examples are Babylonian; the best known survivals occur in folk song and jingles used as charms.

Incarnation (Latin *caro*, flesh.) Act of embodying in flesh, but specifically the assumption by the Godhead of human form and nature in the person of Jesus Christ. Our Lord's own claims, S. Paul's association of His grace with God's love and the Spirit's fellowship, and S. John's view that the Word co-existed with God eternally, led to the doctrine of the Trinity. The early church sought to define this mystery in the Nicene creed, and alternative views gave rise to heresies. Modernist thought urges that in becoming flesh the Incarnate Son accepted human limitations, and does not regard belief in that event as necessarily involving the acceptance of a miraculous birth.

Ince-in-Makerfield Urban district and market town of Lancashire. It is 204 m. from London by the L.M.S. Rly., and is near Wigan. There are coal mines, and cotton mills, and railway stock is manufactured. The county division of Ince returns a member to Parliament. Pop. (1931) 21,763.

There is another Ince in Cheshire. This is a village 7 m. from Chester. Pop. 330.

Incense Blend of sweet smelling spices burned in a thurible and symbolic of ascending prayer. It is generally used in the Roman Catholic Church, but only by a few high churchmen in the Church of England. It is chiefly made from frankincense, myrrh and benzoin.

Incest Intercourse between persons so closely related that they are debarred from contracting legal marriage. An Act of 1908 made it a misdemeanour for a male to have intercourse, or attempt to procure it, with his mother, sister, daughter or granddaughter. The terms "brother" and "sister" include also a half-brother or half-sister, whether in wedlock or not. The penalties are penal servitude for 3 to 7 years, or imprisonment up to 2 years. A female over 16 who, knowing the relationship, permits such intercourse, is liable to like penalties.

Inchcape Rock off the coast of Scotland, often called the Hell Rock. It is at the mouth of the Firth of Tay, and on it is a lighthouse. The rock which is submerged by high tide is 500 ft. long. On it, as Southey's poem relates, there was once a bell which was rung by the action of the waves to warn mariners.

Inchcape Earl of. British merchant and financier. Born at Arbroath, Sept. 11, 1852, James Lyle Mackay went to India in 1874. He became a partner in a firm of merchants there and was soon one of the most influential business men in the country. From 1891 to 1893 he was a member of the Viceroy's legislative council, and in 1902 he went to China, where he concluded a commercial treaty between that country and Great Britain. He was then knighted.

Having settled in Britain, Mackay was a member of the council of India, 1897-1911, and was associated with some great industrial concerns. He was chairman of the P. and O. line, the National Provincial Bank, and he was also a director of the Suez Canal Co., and the Anglo-Persian Oil Co. He served on a number of commissions and committees, including the one on national economy presided over by Sir E. Geddes, and was chairman of the India retrenchment committee. After the war he sold for the Government an immense amount of shipping. In 1911 Mackay was made a baron and in 1924 a viscount. In 1929 he was created an earl. His eldest son is called Viscount Glenapp. His daughter, the Hon. Elsie Mackay, lost her life while flying across the Atlantic in 1928 and her fortune of over \$500,000 was devoted to reducing the national debt. Earl Inchcape died suddenly in his yacht, *Rover*, off Monte Carlo on May 23, 1932.

Inchcolm Island of Fifeshire. It is 4 m. from Burntisland, and is about $\frac{1}{2}$ m. long. On the island are the ruins of a monastery founded in 1123 by Alexander I. of Scotland.

Inchiquin Earl of. Irish title borne by the family of O'Brien. In 1543 Murrrough O'Brien, said to be descended from the kings of Munster, was made baron of Inchiquin. In 1654 the 6th baron was made an earl, a reward for his services to Charles I. and Charles II. in Ireland. In 1801 the 5th earl was made Marquess of Thomond, but the two titles became extinct in 1855. The barony passed to a distant relative and still exists in the peerage of Ireland.

Inchkeith Island of Fifeshire. Formerly the property of the Duke of Buccleuch, it is in the Firth of Forth, and is 4 m. from Leith. It has a lighthouse.

Incline Slope on a road or railway. As on an inclined plane force has to be exerted to overcome friction, the steeper the slope the heavier the pull; hence the gradient in road making is seldom more than one in 20.

An inclinometer is an instrument used for determining the vertical component of the earth's magnetic force, and is known also as a tipping needle. The term is used also for any instrument for the measurement of angles of inclination in surveying.

Income Tax Tax on incomes levied for meeting the expenses of the country in the United Kingdom, the United States and many other countries. It was introduced in England in 1799, as a temporary measure, but since 1842 it has been permanent.

From the first the principle of the tax has been that small incomes are free from it. When it was introduced incomes under £80 were free; later incomes up to £160 were relieved. During most of the 19th century the tax was only a few pence in the pound, 4d or 6d., but at the end of the century it rose to 1s. 3d.

The changes that have made the income tax what it is to-day began in 1907. In that year a lower rate was introduced for earned incomes under £2000 a year. A little later the principle of making allowances for children and other dependents and for money paid on life insurance premiums was started. In 1909 a super tax, now called a surtax, was levied, in addition to the income tax proper on all incomes in excess of £5000 a year.

The outbreak of the Great War caused a great increase in the rate of income tax, and at one time it was raised to 6s. in the £, apart from the super tax. In 1920, after the end of the war, a royal commission enquired into the matter, and the system as it is to-day was established. No tax is payable on an income of £100, or on £150 if it is the joint income of a married couple. In addition there are allowances for children, life insurance premiums, etc., so that a man with a large family may pay nothing, although his income is £400 or £500 a year. In addition, the first £175 of taxable income, as it is called, pays at a lower rate. Thus in 1932, when the rate was 5s. in the £, the first £175 of taxable income was only charged at 2s. 6d. in the £. The taxpayer is allowed to deduct one-fifth of his earned income and only pay on the balance, but he can only do this up to a maximum of £1500 a year. There are arrangements with Australia, Canada, the Irish Free State and other parts of the Empire to prevent a person from paying tax twice on the same income.

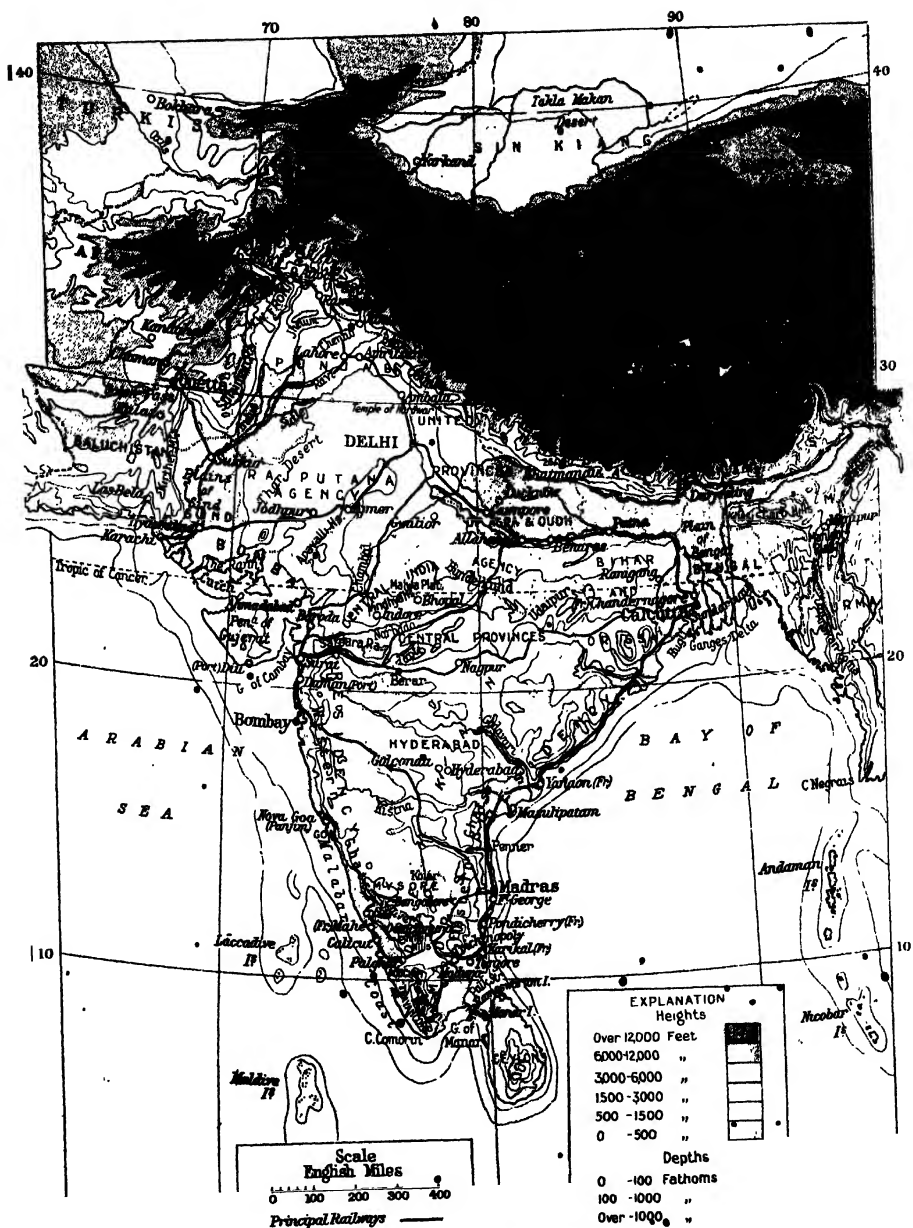
The tax is levied once a year. A form is sent to each taxpayer, who fills up the amount of his income during the previous twelve months. On this he is charged and the amount is paid in two instalments, except that manual workers can pay quarterly. Three quarters of the tax is paid in the first (Jan.) instalment, and one quarter in the second. The Board of Inland Revenue looks after the collection of the tax, and there are collectors and inspectors all over the country. In 1932 the amount estimated by the Chancellor of the Exchequer to be raised from income tax was £260,000,000.

Increasing Returns Law of. Law in economics. Enumerated by Alfred Marshall in *Principles of Economics*, it suggests that an increase of expenditure of capital and labour in industrial operations usually leads to an increase in output, contrasting with nature where the law of diminishing returns mainly operates.

Increment Increase of any kind. It is most generally used for an increase in the value of land due to the growth of the population and of business. For many years there was an agitation for the taxation of this increment and in 1911 an increment value duty was imposed in Great Britain. It proved less successful, however, than its advocates believed and in 1920 it was abolished. In 1931 another attempt, but in a different form, was made to tax land values.

Incubation In zoology, a term applied to the process by which birds stimulate the development of their eggs by the heat of the body of the parents, one or sometimes both sitting upon the eggs

INDIA



until their young are hatched. In the Australian mound-birds the eggs are buried in decaying vegetable matter which forms a kind of hot-bed.

In pathology incubation is the period between the infection and the appearance of the symptoms of a disease.

Incubus A demon. Arising out of the belief in evil spirits, these nocturnal visitors were supposed in mediaeval times to visit women, as succubi did in the case of men. The term is now used for an onerous or an oppressive measure.

Incumbent Name used for a man who holds a benefice in the Church of England, or any other established church. The office is a freehold possession and its holder can only be deprived of it if guilty of a serious moral offence. See **BENEFICE**.

Incunabula Latin word used since 1689 to denote early printed books, specifically those printed before 1500. The British Museum and Bodleian Library possess about 10,000 incunables. The word means swaddling clothes.

Indecency In English law an offence which includes the publication or sale of indecent literature, photographs or prints, indecent assault, or exposure of the person. Prosecutions for sun bathing have been instituted in several cases as violating the law against indecency.

Indemnity Undertaking or promise to sum of money paid in case of such loss. The money paid by France to Prussia after the war of 1870-71 was called an indemnity, and the word is sometimes used for what is better known as reparations. Persons sometimes give an indemnity to those who are employed by them on a piece of business. A contract often contains clauses of this kind.

An act of indemnity is one passed to free persons from the consequences of illegal actions. In times of emergency persons in authority must sometimes act without waiting for legislative permission. This was the case during the Great War, so in 1920 an Act of Indemnity was passed freeing them from the consequences of their illegal actions.

Indenture Term for a legal document. It is so called because the edges of the early ones were indented. The terms were written in duplicate on the same piece of parchment, which was then divided in order that one part could be given to each party. When it was divided indentures were left so that forgery was almost impossible as no other piece of parchment would fit the indentures. This is no longer done, but the word is still used for deeds and the like.

Independence State of being free; the consent of someone else. The Declaration of Independence is the document by which the United States declared themselves independent of Great Britain. It was drawn up by Congress and accepted by the representatives of the 13 original states on July 4, 1776. The 13 states were Massachusetts, New York, New Jersey, Virginia, Pennsylvania, Maryland, North Carolina, South Carolina, New Hampshire, Rhode Island, Delaware, Connecticut and Georgia. Since then, July 4 (Independence Day), has been kept as a national holiday.

Independent Name sometimes used for the religious denomination more usually called Congrega-

tionists (*q.v.*). They took this name in the 17th century because their members refused to recognise any external authority in religious matters, each church being quite independent. Cromwell and many of his followers were Independents and they were strong in both England and the American colonies.

Independent Labour Party

Political organisation in Great Britain. It was founded in 1893 by J. Keir Hardie, but must be distinguished from the Labour Party which controls the Labour movement in Parliament. Its offices are at Lanark House, Seven Sisters' Road, London, N. 4.

Index Latin word for a list. It is now used in several senses. To facilitate reference the contents of a book are often supplied with an index, the subjects being arranged therein in alphabetical order, with the page on which each will be found. Indexing is a work which calls for a high degree of intelligence and care, and good indexes are rare. An encyclopædia with its contents arranged in alphabetical order does not require an index.

A card index is an index in which the information is kept on cards. The advantage is that new entries can be inserted at any time. These indexes are much used in business, chiefly for the names of customers.

In mathematics an index is a power to which a number has been raised. Thus in the expression x^3 , 3 is the index, or power of x .

The first finger is sometimes called the index finger because it points.

The Roman Catholic Church has an *Index Librorum Prohibitorum*, a list of prohibited books. On this are put the names of all books which the church forbids its members to read. It is under the control of the Congregation of the Index in Rome.

Index Number

Number compiled as an index to prices. The prices of certain commodities are taken, and from these, by rather elaborate calculations, index numbers are prepared. These show at certain periods the rise or fall in prices. The numbers known as Saengerbeck's are much used by merchants, but better known are those prepared every month by the Ministry of Labour. These show variations in the cost of living, and on them the bonuses paid to civil servants and others are based.

India Country and peninsula of Asia forming an empire under the sovereignty of Great Britain. It covers 1,805,300 sq. m. and is bounded on the north by Afghanistan and the Himalayas and elsewhere by the sea, represented by the Bay of Bengal and the Arabian Sea, arms of the Pacific Ocean. The empire and the peninsula are not quite coterminous. The former includes Burmah, but excludes some districts on the west coast, such as Goa and Pondicherry, that belong to Portugal and France. Ceylon is British, but is outside the Indian Empire.

In the north are the vast mountain systems containing the highest peaks in the world. Elsewhere are the fertile plains of the Ganges and the Indus, and still farther south is the plain called the Deccan and ranges of hills such as the Ghats and the Nilgiris. A third great river is the Brahmaputra. On the whole India is well watered, and the basins of the Ganges and Brahmaputra are liable to heavy floods, but in other areas, notably Bombay, a good deal of irrigation work has been necessary. The population, which, according to the census of 1931 was 350,353,678, belongs to

many races and speaks many languages. Two hundred and twenty-two of these have been recognised and they are grouped into seven families:—Western Hindi, Bengali, Telugu, Marathi, Tamil, Punjabi and Rajasthani. Hindustani is the literary language, and perhaps 3,000,000 people speak English. In religion the Hindus are the most numerous, just over 238,000,000; the Mohammedans number just under 80,000,000; and there are 12,000,000 Buddhists. Many of the inhabitants are gathered in the great cities, of which the largest are Calcutta and Bombay. Other populous centres are Madras, Hyderabad, Rangoon, Delhi, Lahore, Ahmedabad, Lucknow, Bangalore, Karachi, Cawnpore and Poona. The caste system prevails and is still strong.

The most convenient division of India is into British provinces and native states, which retain a certain amount of independence, but are under British protection. The former cover 1,094,300 sq. m. The largest province is Burma, which in some ways stands apart from India, and which it is proposed to separate from it. Next comes Madras, one of three old presidencies of British India, and the third is another presidency, Bombay. The United Provinces of Agra and Oudh, the Punjab, and the Central Provinces and Berar are all about the same size. Next in area are Bihar and Orissa, Bengal, Assam and Baluchistan, while much smaller are the North-West Frontier provinces, Ajmer-Merwara and Coorg. The Andaman and Nicobar Islands form a province and another is Delhi, the capital of the empire. Bombay, it may be said, includes Sind and Aden. The larger provinces are under governors, the smaller ones under chief commissioners.

The native states, of which there are some hundreds, cover 711,000 sq. m. Each with its own ruler, the largest are Hyderabad, Kashmir, Mysore, Gwalior and Baroda; the others are grouped together into agencies.

India is governed by a Governor-General, or Viceroy, who is responsible to the Secretary of State for India in London. He is assisted by a legislature of two houses. One of these is the Council of State and the other is an elected legislative assembly which was created in 1921. In addition, under the important scheme of 1919, there are legislative councils in the provinces, the members of these being partly elected and partly official, the former in a majority.

The actual work of the government is controlled by the viceroy's executive council and by executive councils in the various provinces. Each member of the central executive council has charge of a department of state, and its duties are discharged all over the land by members of the Indian Civil Service. To discuss the affairs of the native states there is a chamber of princes and residents representing the central government at their courts. In London there is a council of India to advise the Secretary of State. It consists of 12 members and two must be natives of India. There is also a high commissioner with offices at India House, Aldwych, a fine building opened in 1930.

Agriculture is the main industry of the Indian people, though many are employed in the ancient crafts and an increasing number in manufactures, especially of cotton. Rice, wheat and cotton are the chief crops; others are jute and sugar. Coal and oil are produced, as are moderate quantities of gold and silver.

Vast areas are still under forest and to look after these there is an Indian Forest Service.

The country has a fairly good railway system and several large seaports. The unit of currency is the rupee worth about 1s. 6d. The chief bank is the Imperial Bank of India. For defence there is an Indian army largely officered by Britishers, and British regiments, about 70,000 strong, are stationed in the country. There is also an air force and a navy. A civil police of some 200,000 men keeps order. Until 1927 the Anglican Church in India was a state church, but it is now autonomous.

HISTORY. India was conquered, in part at least, by the Greeks and the Scythians before the Mohammedans began a series of invasions about 1000. For about 300 years this continued and in time they reached the Deccan. In 1398 the land was wasted by Tamerlane, and in 1526 the great Mogul empire was founded. After a period of great glory, this declined in the 18th century when part of the land was conquered by Persia and the Mahratta kingdom became independent in the south.

At the end of the 15th century the Portuguese began to trade with India and soon had settlements there. The Dutch, French and English followed their example and each formed a company for this purpose, the English East India Company dating from 1600. The wars of the 18th century, and other causes, gave the supremacy to the English Company. Portugal and the Netherlands declined as maritime powers, while France was beaten in war and diplomacy. The English made extensive conquests in India, and before 1850 much of the peninsula was under their control.

After the Mutiny of 1857 (*q.v.*) the system of governing India which, with certain alterations, exists to-day, was established. The East India Company was abolished and its territories placed directly under the crown. In 1877 Queen Victoria was made Empress of India, and for many years the defence of the Indian frontier, which led to a war with Afghanistan, 1878-79, and to many smaller expeditions, was one of the main concerns of British policy. Indian troops fought for the Allies in the Great War, especially in Mesopotamia and East Africa.

In the 20th century a serious agitation for independence for India began. After the Great War there were some unpleasant incidents and Gandhi, the most prominent native, instituted a boycott of British goods, and took other steps to undermine British rule. But before this, to meet the Indian demands, the British government made certain changes. Indians were given a greater share in the government of their country, and in 1922 the Government of India Act established a representative body in the legislature. In 1927 a royal commission under Sir John Simon was appointed to report upon the whole question of the future government of India. In 1930 the recommendations of this body were published, one being the separation of Burma.

A conference to consider the report was held in London in 1930 and 1931. A scheme for a federal constitution was prepared, but the claims of the Hindus and the Mohammedans could not be reconciled. Another proposal was the extension of the franchise to include 6,600,000 women.

Indiana State of the United States. In the centre of the country, it lies south of Lake Michigan and covers

36,350 sq. m. The chief rivers are the Wabash and the Ohio, and agriculture is the main industry. Indianapolis is the capital and the largest city. Others are Fort Wayne, Evansville, South Bend, Terre Haute and Gary. It sends two senators and 13 representatives to Congress. Pop. (1930) 3,238,503.

Indianapolis City and chief town of Indiana. It is 110 m. from Cincinnati and is an important railway centre. The industries are chiefly connected with the provision of food. Pop. (1930) 364,161.

Indian Civil Service Service that centres on the work of governing India. It is open to Britishers and Indians alike, and to enter it candidates must be successful in a competitive examination held every summer. For this the age limits are 21 and 24. The successful candidates must pass one or two years in study in England, and pass a further examination before they take up an appointment in India. The pay begins at about £720 a year and candidates can secure high positions as judges and administrators. After 25 years of service a pension of not less than £1000 a year is given. Full particulars of the examination can be obtained from the Civil Service Commission, Burlington Gardens, London, W.1.

Indian Ink Ink of an intense black colour used by artists and draughtsmen and sometimes called China ink when made in sticks or cakes. It is prepared from lampblack or carbon black mixed with weak glue or other ingredients. Ordinary Indian ink is not waterproof, but special waterproof preparations are now made.

Indian Millet Cereal grass yielding, after rice, the most extensively grown grain in the Old World. It is derived from *sorghum vulgare*, and innumerable varieties produce durra in Egypt and the Sudan, and Guinea and Kafir corn in Africa. Other sorghums yield broom corns and Chinese sugar cane. It is indigenous to Asia, but is now grown in North America.

Indian Mutiny Revolt against British rule in India in 1857-58. It is usually attributed partly to an order stating that in future Bengal soldiers were liable to service overseas, but still more to the act of serving out to the native soldiers cartridges greased with the fat of pigs and cows, the one an unclean and the other a sacred animal.

There were, however, other causes of discontent, although those mentioned played their part. Western ideas were being introduced and native customs suppressed, thus giving rise to vague, but none the less real feelings of disaffection. After some sporadic outbreaks at Barrackpur and elsewhere, the mutiny proper began at Meerut on May 10. There some native regiments murdered their officers with their women and children, marched to Delhi, 40 m. away, and restored the old Mogul Empire in the person of Bahadur Shah. Other centres of revolt were Cawnpore and Lucknow, and at both places British garrisons, aided by some loyal sepoys, were besieged. On June 27, Cawnpore surrendered and, in spite of a safe conduct, all men, women and children were murdered by order of Nana Sahib. In the residency at Lucknow the British held out.

Sir Henry Havelock fought several battles on his way to Cawnpore, which he entered too

late to save the garrison. From there he marched towards Lucknow which he reached on Sept. 23. By now his force was very much reduced in strength and he could only join the besiegers and wait with them for further aid. The mutiny at Delhi had meanwhile been crushed. On August 14 the city was stormed and heavy punishment dealt out to the rebels there.

By now Sir Colin Campbell had arrived with reinforcements from Britain. He reached Cawnpore, and then with 8000 men relieved the garrison at Lucknow. The worst was over, but much remained to be done. Campbell spent some time in putting down the revolt in Oudh, whilst Sir Hugh Rose dealt with the mutiny farther south, in both areas a tedious guerilla warfare being carried on. The capture of Jhansi and Gwalior by Rose in the summer of 1858 marked the end of the major operations. The revolt was confined to Bengal, Oudh and other parts of northern and Central India, and, with one or two exceptions, the native rulers remained loyal to Britain.

Indian Ocean One of the five great oceans of the world. In the southern hemisphere, it stretches from Africa to the East Indies and Australia and in the other direction from Asia to the Antarctic. India divides the northern part into two portions.

Indian Summer American name for a period of fine weather in autumn. Known in England as St. Martin's Summer, it is characterised by calms and absence of rain.

Indiarubber Name given to *Hevea brasiliensis*, a tall evergreen tree growing in the damp forests of northern India, Assam and Burma. It is distinguished by its smooth oblong leathery leaves, a character which has brought it into favour in Great Britain as a decorative pot plant. In Assam large government plantations are established for supplying rubber, which, however, is of lower grade than that obtained from *hevea*, the source of most commercial rubber. See RUBBER.

India Office Department of the British Government. It dates from 1858, and is responsible for looking after the affairs of India. Its head is a secretary of state, who is assisted by an under-secretary and a staff of civil servants. There is also a consultative council. The expenses of the office are met from Indian funds. The office is in Whitehall, London, S.W.

Indictment In English law a written accusation against a person who is tried by a jury. Offences are divided into indictable and non-indictable, the latter being the minor ones. In indictable offences the accusation is put in writing and submitted with the evidence to the grand jury, for consideration. If they consider it proving they return a true bill, or indictment, and the accused goes to trial. In Scots law, an indictment is the form under which an accused person is put to trial at the instance of the Lord Advocate.

Indies Term used for two districts of the globe. The East Indies consists of India, the Malay Archipelago and the districts around them. The West Indies consists of Cuba, Jamaica and other islands off the coast of Central America. See INDIA; WEST INDIES.

Indigestion Inability to digest food arising from disorder of the digestive organs. See DYSPEPSIA.

Treatment should be mainly preventive—avoidance of foods which usually cause the condition, such as strong tea, fresh white bread, sweet cakes, heavy puddings, some root vegetables (e.g. turnips), twice-cooked meat, and rich dishes cooked with fat.

A simple, wholesome diet should be adopted with meat once a day at the most, and plenty of fresh, natural foods. Three meals are sufficient, and there should be no eating between meals, though plenty of water should be drunk. One or two tumblerfuls of hot water before breakfast and at bedtime will be beneficial. To relieve an attack a pinch of bicarbonate of soda in water or a dose of bismuth may be useful in some cases. It is essential that constipation should be relieved, if necessary, with daily doses of medicinal paraffin, and regular exercise in the open air will help to restore the general health.

If the condition persists, a doctor should be consulted in case there is some underlying cause. (See also FLATULENCE, HEARTBURN).

Indigo Important blue dyestuff. It is prepared from several leguminous plants of the genus *Indigofera*, chiefly *I. tinctoria* and *I. arrecta*, cultivated in India, Java and Natal. The sediment from a watery extract of the plant is dried and formed into small cubes of the dyestuff, which is of a deep blue colour with a coppery tinge. Natural indigo to a large extent is superseded by the synthetic product, a derivative of naphthalene. This gives greater ease in manipulation and less cost of production.

Indium Rare metallic element having the symbol In and atomic weight 111.8. It was discovered in 1863 in zinc blende and occurs also in other zinc ores and zinc flue dust. Indium is a soft white ductile metal which melts at 155°C., and when heated to redness in air burns with a violet flame.

Individualism Theory in politics and economics that opposes the interference of the state in the affairs of individuals. It is thus opposed to socialism, collectivism and communism. Individualism was advocated by Adam Smith, Bentham, John Stuart Mill and Herbert Spencer and was very strong in the 19th century. Towards the end of that century, however, it became less popular and to-day is almost discredited. Many reasons have contributed to this, one of the most powerful being the impotence of the individual in the face of the conditions of the modern world, where the tendency is to larger and larger units for production and distribution, with the individual becoming more and more a mere cog in the great machine.

Indo-China Name given to a region in Asia that lies between India and China. A French possession, it consists of Cochinchina, Cambodia, Tongking, Annam and Laos. It covers 285,000 sq. m. and is under a governor general. The capital is Hanoi. The unit of currency is the piastre, and a bank of Indo-China has been established. Pop. 21,000,000.

Indonesia Ethnological term for groups of islands in the Indian and Pacific oceans. Included are the Java group, part of the Malay Peninsula, Borneo, Celebes, the Philippines and the Pacific groups. Modern investigations in the western groups have brought to light remains of former inhabitants who do not resemble the present races but are allied to those now inhabiting Australia and

the Pacific groups, forming important evidence as to migration and the origin of the races in the latter.

Indore State of India; also the name of its capital city. The state is in the centre of the country and covers 9519 sq. m. It is ruled by a maharajah. Pop. 1,147,900.

The city of Indore stands on the River Saraswati near where it is joined by the Khan. It is the seat of the ruler and trades in cotton, corn and other commodities. Pop. 93,100.

Induction Process of thinking. In logic there are two methods of reasoning, the inductive and the deductive. In the former the argument is from a general principle to a particular case; in the latter it is the reverse. By induction a man, knowing that water will always run downhill, makes his pond at the bottom of a sloping garden. See DEDUCTION.

Induction In ecclesiastical law the formal act of placing a clergyman in possession of a living. It is usually done by the bishop, and until the ceremony is performed the clergyman is not legally entitled to the revenues of his office.

Induction Term used in electricity for the electrifying or magnetising of a neutral body by an electrified or magnetised body in the vicinity. In electro-magnetic induction a current is generated in a conductor by varying the surrounding magnetic field.

An induction coil consists essentially of a soft iron core surrounded by a primary coil of short thick wire and an outer coil of long thin wire. A magnetic field is formed in the core by a current passing through the primary coil, and by continuous interruptions or changes of direction of flow of this current induced currents are set up in the outer coil.

Indulgence Concession or power to do something. It is chiefly used in the Roman Catholic Church for a remission from punishment for sin. Indulgences were first used to free penitents from punishment in this life, but later they were given by the Pope to free them from punishment hereafter. The theory was that there was an inexhaustible fund of grace upon which the Pope could draw for the benefit of those in purgatory. Indulgences, which are either plenary or partial, are still given by the Pope. The selling of indulgences in Germany to obtain money to rebuild St. Peter's, Rome, was one of the reasons why Luther, in 1517, attacked the Church of Rome and started the Reformation. James II. of England caused irritation by issuing declarations of indulgence to relieve Roman Catholics and Nonconformists from the penalties attached to their religion.

Indus River of India. It rises in the Himalayas in Tibet, at a height of 18,000 ft. Flowing N.W. through the Kashmir gorges, it turns S.W. near Bunji, receives the Kabul River near Attock and collects the Punjabi streams at Mithankot, below which it traverses the plain of Sind to its delta on the Arabian Sea. The fall to Attock, 900 ft. about sea level, below which it is navigable, causes flooding, but the extent of this has been reduced by a dam and vast irrigation works. The length of the river is 1800 m. and its drainage area is 372,000 sq. m. Its waters are used for the world's largest irrigation system, consisting of the Lloyd Barrage at Sukkur and seven canals.

Industrial Court Department of the British Govern-

ment. It was set up in 1919 to deal with disputes between employers and employed. Its headquarters are at 5 Old Palace Yard, Westminster, S.W.1. Disputes referred to it are decided by a court which is composed of representatives of both classes with an independent chairman. To constitute these courts there are panels of employers, employed and neutrals, from which a court can be formed.

An **industrial council** is a council of employers and employed which exists to deal with trade disputes. They are found in many industries and are usually known as Whiteley councils.

Industrial Disease In Great Britain a disease which arises from the condition of one's occupation. Miners and those who handle wool, hair and other commodities are among those subject to these diseases. Workers with lead, mercury, arsenic, and other substances are sometimes poisoned and workers in certain chemicals are liable to injury of one kind or other. A list of industrial diseases has been drawn up by the Home Office, and those suffering from one of them can claim compensation under the Workmen's Compensation Acts.

Industrial Psychology

Branch of psychology which investigates the behaviour of workers. It deals with the special psychological problems involved in modern industrial employment. Among matters that come under review are hours and conditions of labour, pauses for rest, meal times, monotony, fatigue onset, etc. A section deals with vocational tests designed to aid the selection of suitable workers for particular tasks. There is a chair of Industrial Medical Psychology in London University.

Industrialism Word used for the system of industry in force to-day, the production of goods in factories and works on a large scale. It is the opposite of the older system by which goods were produced by men working in their own homes, or in small workshops. Many modern evils are put down to industrialism, and some of the charges brought against it are doubtless true, but it appears an inevitable development in the modern world. Indeed, it shows signs of spreading from the countries of the west, where it has been developed, to the countries of the east, where for centuries an entirely different system has prevailed.

Industrial Revolution

Phrase used for the change that came over industry in Great Britain in the 18th and early 19th century. It was marked by the substitution of steam for hand labour and by the building of factories for the manufacturing processes that were previously done in the homes. It is associated with the inventions of Arkwright, Hargreaves and others, and received a great impetus when the steam engine was invented. It may be said to have begun about 1750 and to have been completed by 1850.

Industrial School Institution for children who are unruly. A boy or girl can be sent to one of these by a magistrate, but he or she must not remain therein after the age of 16. They are called industrial schools because the inmates are taught trades.

Inebriate Word used for a habitual drunkard. In Great Britain such persons can be put under control and there

are institutions in which they are received. These must be licensed and are inspected by officials of the Home Office. To be put under restraint an inebriate must be certified by two medical men. There are associations for the care of inebriates, and one for the study of inebriety.

Inertia In physics, the inherent property of matter of retaining its state of rest or of uniform motion in a straight line unless acted upon externally. **Rotational inertia**, or moment of inertia, is the sum of the products obtained by multiplying each element of mass by its squared distance from the axis. The centre of inertia is the centre of gravity or mass. **Electric inertia** is that superinduced by an electric charge.

Infallibility Inability to do wrong. It is chiefly used in ecclesiastical matters. Many Christians have held, and some do hold, that the Bible, or the Church, or both, are infallible. This arises from the belief that both are of divine origin and that the Church is guided by the Holy Spirit. In 1870 the doctrine of papal infallibility was declared by a council of the Roman Catholic Church.

Infant Person under 21 years of age. In English law an infant is under certain disabilities. He or she cannot bring an action at law, but must sue, if and when it is necessary, through a next friend. A tradesman who supplies an infant with necessities can obtain payment, but he cannot do so if he supplies luxuries to an infant. The court will decide what are luxuries, having regard to the position of the infant. An infant cannot enter into a contract.

The murder of young children is known as **infanticide**. At one time, to deal with the surplus population, it was much practised in India. Certain primitive peoples, both in the ancient and the modern world, have resorted to it, either for the same reason, or to rid the community of weaklings.

Infant Mortality Term used for the death rate among children under one year old. At one time this was terribly high, but in the 19th century civilised countries took steps to reduce it and it has been enormously reduced. The steps taken include the provision of milk and nurses, the isolation of infectious cases, better housing, greater cleanliness, and in general all that makes for a higher standard of living. The rate varies very much between various districts, and it is still much too high where housing conditions are bad.

Infantry Word used for foot soldiers. Ever since organised warfare began the infantry have been the most numerous and the most important part of an army. It was so in the Persian, the Greek and the Roman armies and was equally so in the changed conditions of the Great War. Early armies consisted of infantry and cavalry, the latter a comparatively small body, and in the Middle Ages there were many struggles between the two, the advantage being sometimes with one and sometimes with the other. Later the artillery made a third arm, and later still came the airman, but since about 1400 no major battle has been won without a stout body of infantry.

Infantry to-day are organised in battalions about 1000 strong and form something like three-quarters of the strength of the modern army. From early times they have been classified, usually according to their principal

weapon, and so we hear of slingers, archers, crossbowmen, pikemen, fusiliers, grenadiers, riflemen and others. Mounted infantry are infantry who use horses to aid their progress, not to fight on as do cavalry.

Infection Conveyance of disease through the entrance into the body of micro-organisms which generate toxins in the blood or tissues of the patient. Many infective disease germs are carried by persons apparently healthy as in the case of typhoid fever, and a number of animals and insects are responsible for the spreading of contagious diseases.

In Great Britain the more serious infectious diseases, scarlet fever and smallpox, for instance, are notifiable, i.e., the medical officer of health must be informed, under penalty of a fine, when a case occurs. Other diseases, e.g., measles, can be made notifiable if a local authority desires it.

Inferiority Complex In psychology, feeling of inferiority, manifested by lack of confidence, dissatisfaction with one's achievements, diffidence, etc. It often leads to a reaction or swing in the other direction, the subject assuming a bold, confident, self-satisfied or even pompous demeanour. Some Psycho-analysts derive the inferiority feeling from some actual physical drawback of the subject.

Infidel Word meaning without faith and denoting, more or less opprobriously, one who rejects Christianity, while accepting no other faith. It is not applicable to heathens, to those rejecting particular doctrines only, or to doubters prepared to be persuaded. Mohammedans designate Christians by similar words, *yisour*, *kafir*.

Inflammation Condition of a part of the body. It is characterised by a congestion of the blood-vessels causing redness, rise in temperature, swelling and pain, and is due to the presence of microbes, irritant bodies, burns, etc. The white blood corpuscles or leucocytes in the blood-vessels destroy the microbes and the remains of the dead microbes and leucocytes form pus or matter. Where chronic inflammation occurs, it may be caused by such complaints as rheumatism, gout or tuberculosis.

Inflation Condition of being puffed up with air, or gas. It is used when air is pumped into motor tyres and in other such cases.

It is also used financially for an increase in the amount of money, especially paper money, in circulation. There was a good deal of this in most European countries during the war period, and it was suggested as a remedy for the serious depression that prevailed in 1931-32. Its effect is to raise prices. The opposite process is called deflation (q.v.). See REFLATION.

Influenza Infectious feverish disorder of short duration. It is characterised by catarrh of the respiratory and intestinal tracts and more or less prostration. It usually occurs in epidemic waves. Apparently caused by a microbe, which usually operates within 48 hours, it may sweep rapidly round the world as it did in 1918-19. The disease has a low death-rate, as a rule, but has protracted effects upon the general health.

Treatment—To avoid risk of complications, rest in bed in a warm room is essential until the temperature is normal (98.4° F.). Aspirin will relieve pain and reduce temperature, and a light diet should be adopted. An aperient should also be taken.

Informer In English law a person who prosecutes another for breaking the law. In 1931 there were cases of this kind and common informers brought actions against the proprietors of cinema houses for keeping these open on Sunday. In one case at least of this kind, large damages were awarded to the informer.

Another kind of informer is a criminal who comes forward to give evidence against his fellow criminals. This is usually called turning king's evidence.

Ingatstone Town of Essex, 24 m. from London, on the L.N.E. Rly. Near is Ingatstone Hall, the seat of Lord Petre. Pop. 600.

Inge William Ralph English divine. Born in Yorkshire, June 6, 1860, he was educated at Eton and King's College, Cambridge. From 1880-84 he was a master at Eton and from 1889-1904 was fellow and tutor of Hertford College, Oxford. In 1905 he became vicar of All Saints, Ennismore Gardens, London, and in 1907 Lady Margaret Professor of Divinity at Cambridge. In 1911 he was made Dean of St. Paul's. During his years at St. Paul's, Dean Inge became a very popular writer, dealing fearlessly with the problems of the modern world. His ideas are contained in *Outspoken Essays*, *The Idea of Progress*, *Lay Thoughts of a Dean*, *More Lay Thoughts of a Dean*, 1931, and other books. He has written standard books on mysticism and the philosophy of Plotinus. In religion Inge is a broad churchman with only scant sympathy with High Church ideas.

Ingelow Jean English poetess. Born at Boston, March 17, 1820, in 1863 a volume of her verse attracted attention, and was followed in 1867 by a long poem, *A Story of Doom*. She then turned to novel writing, and published *Off the Skillog, Don John* and other books. She died in London, July 20, 1897.

Ingersoll Town and river port of Ontario, on the Thames, 19 m. from London, on the C.P. and C.N. Rlys. There is a harbour, and the town has some manufactures. Pop. 5150.

Ingersoll Robert Green American writer. Born Aug. 11, 1833, the son of a minister, he became a lawyer. He served in the Civil War and was afterwards known as Colonel Ingersoll. In politics, having been a Democrat, he turned to the Republicans and was made Attorney-General of Illinois. He was better known for his attacks on Christianity. He died July 21, 1899.

Ingleborough Hill in Yorkshire, about 3 m. from Settle in the N.W. of the county, and 2370 ft. high. On it are remains of a fort and in it is Ingleborough Cave containing stalagmites and stalactites.

Ingleton Market town of Yorkshire (W.R.), 10 m. from Settle and 246 from London on the L.M.S. Rly. Pop. 2164.

Ingot Unwrought metal cast and moulded into portions of a convenient shape and size for further use. The term is applied particularly to gold, silver and steel.

Ingram Rex Film producer. He was born in Dublin, Jan. 15, 1892. Going to the United States, he worked there as a sculptor and an actor, afterwards becoming connected with the film industry. His



A PICTURESQUE ENGLISH INN.—The *Star*, Alfriston, one of the oldest hosteleries in the country in the oldest village in Sussex. In this house, according to tradition, occurred King Alfred's famous misadventure with the cakes.

[Edgar and Winifred Ward and Trust Houses, Ltd.]

productions include *The Garden of Allah* and *The Four Horsemen of the Apocalypse*.

Ingres *Jean Auguste Dominique*. French painter. Born Aug. 29, 1780, he was awarded the Grand Prix in 1801 after a years' study. Consisting chiefly of portraits and classical subjects, his work is represented in the Louvre and many European collections and at the Musée Ingres at Montauban opened in 1867. He died Jan. 14, 1867.

Inhabited House Duty

Tax levied until 1924 on all inhabited houses in Great Britain over a certain yearly value. It was introduced in 1851 and was on a graduated scale, 3d., 6d., or 9d., on houses worth more than £20 a year. On farmhouses, shops and public houses it was 2d., 4d. or 6d. It was abolished in 1924.

Inhibition. Term meaning external restraint. In psychology it is applied to the repression of an impulse, etc., which, from its nature, is repugnant to the conscious mind. Many primitive urges are thus inhibited. Inhibition may not be complete, and the energy is then displaced on to some associated mental process not unacceptable to consciousness. See **PSYCHO-ANALYSIS**, **REPRESSION**.

Initiation. Introduction or admission by preliminary instruction or ceremony into an office or society. In primitive culture ceremonial introductions, whether into adult privileges and duties, the status of leadership or secret guilds, sometimes meant the effusion of blood, as by circumcision, tattooing or other mutilations.

Injection. Term used in medicine for the method by which a drug or food is introduced into the body by means of a syringe or similar apparatus. Hypodermic injection is a means of introducing drugs beneath the skin by a special form of graduated glass syringe attached to a sharp-pointed hollow needle. Another form of injection is the use of the enema for the washing out of the rectum with water in obstinate constipation or the introduction of drugs or foods into the intestinal tract.

Injector. Apparatus used for causing a current of water to flow in a pipe by means of a jet of steam under high pressure. Various forms of injectors are used for feeding water to steam boilers, the earliest type being introduced by Henri Giffard in 1859. A form of the apparatus is used also for removing water from a boiler, and is termed an ejector, and another type maintains the vacuum in the cylinder of a vacuum brake.

Injunction. Term used in English law. It means an order forbidding a defendant from doing something which he threatens to do. Thus, if there is an action about the ownership of some debentures, the plaintiff could apply to the court for an injunction forbidding the defendant to dispose of them until the action had been heard. Application for injunctions must be made to the High Court.

Ink. Black or coloured liquid used in writing, printing, etc. Ordinary writing inks are made from ferrous sulphate and an infusion of gail-nuts with the addition of a little gum, but in blue-black inks aniline blue or indigo is added. Red ink is usually a solution of eosin dye. Copying ink is a writing ink containing glycerine to prevent

drying, and typewriter inks usually consist of a solution of merhyl violet or other aniline dyes, with oil, glycerine, etc. Printing inks are oily compounds of lampblack, paraffin, rosin, etc. Marking inks are preparations of silver nitrate or aniline dye-stuffs. See **INDIAN INK**.

Inkerman. Ridge in the Crimea, the scene of a battle between the British and the Russians. The hill, which overlooks Sevastopol, was held by the British, who were attacked on Oct. 25, 1854, by the Russians. On Nov. 5, during a dense fog, the Russians attacked again, and only after the arrival of British and French reinforcements were the Russians beaten off. The British lost about 2400 men, the Russians about 11,000.

Inkpen. Village of Berkshire. In the neighbourhood is Inkpen Beacon, the highest point of the Berkshire Downs. It rises to a height of 959 ft. at Walbury Hill. The village is 4 m. from Hungerford. Pop. 660.

Inland Revenue. Name used in Great Britain for the revenue obtained from income tax, death duties, stamp duties and licences of various kinds. The collection of these taxes is supervised by the Board of Inland Revenue at Somerset House, London, W.C.

Inlaying. Method of ornamentation of wood or metal. It consists of the insertion of small thin pieces of some material into the surface to form geometrical or other forms of designs. The materials used may be wood, ivory, pearl, tortoise-shell or metal, and inlaying is used for furniture, chessboards, small boxes, etc. In wood inlaying, thin veneers of different coloured woods are generally used to give contrasts in colour, and these veneers are glued to the surface of the object.

Inman *William*. English shipowner. Born at Leicester, April 6, 1825, he was educated in Liverpool and entered business there. In 1819 he became a partner in a firm of merchants and in 1850 a shipowner. He founded the Inman line, and died July 3, 1881.

Inn. House where travellers are accommodated. The larger inns are usually known as hotels, and all are in the eyes of the law public houses. If accommodation is available the proprietor must take in travellers who apply for accommodation. Every inn must be licensed if intoxicating liquors are sold, and for this purpose can only be open for certain hours each day.

Inns have a great historic interest. They existed in the time of the Romans. In England they are heard of in the 12th century, and from that time until the coming of the railways they played an important part in the life of the country. Some of them, such as *The Mermaid* in London and *The Tabard* at Southwark, are famous for their literary associations. Others, still standing, are famed for their age or picturesque appearance, or both. Such include *The Feathers* at Ludlow, *the Luttrell Arms* at Dunster, *the Old George* at Salisbury, *the New Inn* at Gloucester, *The Maid's Head* at Norwich, *The Star* at Alfriston and many others. The word means within, and a synonym is tavern. The *Innholders Company* is one of the London livery companies. The hall is at 28 College Street, E.C. 4. See **HOTEL**.

Innerleithen Burgh of Peeblesshire, 6 m. from Peebles, on the L.N.E. Rly. The chief industry is the manufacture of woollen goods. The town has a mineral spring and pump room. The spring is the original of the one in Scott's *St. Roman's* H. H. Pop. 2500.

Inner Temple One of the four English inns of court. Its buildings are in the Temple, London, E.C., where it has a fine hall and library. The Society shares the Temple Church with the Middle Temple.

Innisfail Poetical name for Ireland. It means 'the island of destiny.' Irish legends record that the Lia Fail, the stone on which Jacob slept when he saw the heavenly ladder, was brought to Ireland and placed at Tara, where it was used as a coronation stone.

Inniskilling Name formerly used for the Irish town of Enniskillen. It is borne by two regiments of the British Army. The Royal Inniskilling Fusiliers was raised in 1689 and ranks as the 28th regiment of the line; it has a fine record of service, including the Great War. The depot is at Omagh.

The **Inniskilling Dragoons** was raised at the same time and under the same conditions, Enniskillen having just been defended against the forces of James II. and the French. After the Great War it was disbanded and the name taken by the 5th Dragoon Guards.

Innocent Name of 13 popes, the most important of whom was Innocent III. (see below). Innocent I. was pope from 402 to 417. He died March 12, 417, and was afterwards canonised. Innocent II. reigned from 1130 to 1143. Innocent IV., who reigned from 1243 to 1254, was much occupied in the great quarrel with the Emperor Frederick II. Innocent V. only reigned for a few months. Innocent VI., a Frenchman, reigned from 1362 to 1369, and Innocent VII. from 1404 to 1406. Innocent VIII. was pope from 1484 to 1492, and Innocent IX. for a few weeks in 1501. Innocent X. reigned 1644-55; Innocent XI., 1676-89; and Innocent XII., 1691-1700. Innocent XIII. was pope 1721-24.

Innocent III. Pope from 1198 to 1216. The son of an Italian count and the nephew of Pope Clement II., he was born at Anagni in 1160, his name being Lothaire Conti. He was educated in Paris and Bologna, and in 1181 became an official in the papal court. In 1191 he was made a cardinal, and in 1198 he was chosen pope. Innocent reigned for 18 years, a period during which the papacy was at the height of its power. In Germany his influence helped Otto IV. and then Frederick II. to secure the imperial throne; he forced John of England to a humiliating surrender, and his authority was also exercised in France, Norway and other lands. Innocent called the council of the Lateran, which in 1215 proclaimed a crusade, and he was responsible for the crusade against the Albigenses. He died at Perugia, July 16, 1216.

Innocents' Day The day commemorating Herod's massacre of the children of Bethlehem (Matthew ii.). The Greek Church observes it on Dec. 29, and Western Christianity on Dec. 28. In pre-Reformation days it was an occasion of public mourning in England.

Innsbruck Town of the Tirol and the capital of the district. It stands on the River Inn, 102 m. from Munich, high amid the mountains, and is a popular tourist resort. Among the buildings, the first from the point of view of interest is the Franciscan church, which contains the magnificent marble cenotaph of the Emperor Maximilian I. Another famous building is a house with a roof of gilt copper tiles and a notable balcony of the 15th century. Near the town was a Roman station and later an abbey, the church of which still stands. It has a broadcasting station (283 M.; 0.5 kW.). Pop. 56,400.

Inns of Court In England four societies that alone have the right of admitting men and women to practise as barristers. They are Lincoln's Inn, Gray's Inn, Inner Temple and Middle Temple. In Dublin there is an inn of court called the King's Inn and one has existed since 1922 for N. Ireland at Belfast. In Scotland a similar work is performed by the Faculty of Advocates.

Each inn is governed by barristers called benchers, one of whom is chosen each year to act as treasurer. Each of the four English inns has a hall, library, chapel and other buildings in London. At one time there were other inns of court in London, but these have now disappeared except that, in some cases, the name remains. Among these are Clement's Inn, Staple Inn, Serjeants' Inn, Thavies Inn and Clifford's Inn.

Inoculation Term applied to the introduction into the body by subcutaneous injection of an attenuated virus for the purpose of preventing a disease. The best known example of inoculation is that of vaccination for small-pox, but within recent years the use of anti-toxic sera and vaccines has extended the range of inoculation or vaccination to the prevention of many other diseases, such as tetanus, hydrophobia or rabies, diphtheria, typhoid and anthrax.

Inquest Inquiry of any kind. In England in mediæval times inquests were used for a variety of purposes, but to-day the word is confined to inquiries held by a coroner. These usually concern persons who die suddenly, or by violence, in fact, every one for whom a doctor will not give a certificate stating the cause of death. The coroner also holds inquests on treasure trove. At one time a coronor had always to sit with a jury, but since 1927 he need only summon a jury if he thinks that the death was due to violence, such as murder or manslaughter, or to a street accident. See CORONER.

Inquisition Any inquiry, but chiefly the inquiry known in the Roman Catholic Church as the Holy Office. It was founded in 1248 by Pope Innocent IV., for the suppression of heresy, and was directed by the members of the order of St. Dominic. The first tribunal was set up at Toulouse, and it was introduced into Italy, Spain, the Netherlands, Portugal, and taken to the countries of the New World. It lasted until the 19th century, when it was suppressed in the various countries at different dates.

The great age of the Inquisition was the 15th century, and the country where it was most active was Spain. Under an Inquisitor-General, the most notorious of whom was Torquemada, it had an elaborate organisation. Before the tribunals any one suspected of heresy could be brought on the most fragile

evidence. The sittings were held in secret, and the accused knew nothing of his accuser. Torture was freely used by the officials, known as *lamlars*, to extract confessions, and the condemned were usually burned with great ceremonial. Even allowing fully for exaggeration, the Inquisition was responsible for thousands of deaths and a vast amount of suffering.

Insanity State of having an unsound or disordered mind, being unable to control one's actions. Insanity is the result of disease of the mind, acquired or inherited, and if conduct is gravely affected, "certification" and detention in a mental hospital are necessary. The insane are protected by the Lunacy Laws, which are administered by a government department, called the Board of Control. See LUNACY.

Inscription Record of a durable character. It is inscribed upon various materials such as stone, burnt clay, wood, metal, etc., either in conventional writing, pictorial or hieroglyphic script. Our knowledge of the ancient races depends largely upon the decipherment of inscriptions upon buildings, tombs, pottery, etc. The famous Rosetta Stone with its three forms of script furnished the clue to the ancient Egyptian language, while the inscriptions on the Rock of Behistun in Persia gave the key to the cuneiform writing.

Insect Class of the arthropoda, a division of invertebrate animals. They have jointed appendages, and consist of a larger number of species than any other class of arthropods, at the same time possessing a general uniformity of structure. Insects are characterised by having the body divided into head, thorax and abdomen, with the head provided with antennae, mouthparts and other appendages. The thorax bears three pairs of legs and in most cases two pairs of wings, while the abdomen is limless but may have an ovipositor as its modification. The exoskeleton is of unmodified chitin, which may be of considerable thickness.

Insects are air-breathers and respiration is by means of branching tracheae or air-tubes communicating with the exterior. The sexes are separate, and development is usually by a metamorphosis consisting of a larva, chrysalis or pupa, and imago, but in some it is direct. For the most part insects are terrestrial, but a few are adapted for aquatic life.

Insecticide Term applied to various chemicals or chemical mixtures used in agriculture and horticulture to destroy noxious insects. These substances may be in liquid or powder form and are either stomach poisons or contact poisons. Insecticides of the first class destroy by being taken in with the food, and consist of arsenical salts, copper sulphate or sodium fluoride and fluosilicates. Contact insecticides enter by the respiratory pores on the insect's body causing suffocation. Examples are pyrethrum powder and tar oils.

Inskip Sir Thomas Walker Hobart, English politician. Born in Bristol, March 5, 1876, the son of a solicitor, he became a barrister and a K.C. In 1918 he was elected Unionist M.P. for Central Bristol, and in 1922 he was Solicitor-General, an office he again held in 1924-28. In 1928-29 he was Attorney-General, and in 1931 he was again Solicitor-General in the National Government, later becoming Attorney-General. In 1929 having

lost his seat at Bristol, he was returned for the Fareham division.

Insolvency Condition of being unable to pay one's debts. It is thus the equivalent of bankruptcy, though many cases of insolvency are dealt with by a deed of arrangement. See DEED; BANKRUPTCY.

Insomnia Inability to sleep, especially when chronic. Distinguishable from the sleeplessness attending many illnesses and from the occasional wakefulness caused by indigestion, it is often due to worry or overwork, but sometimes succeeds a past illness, e.g., influenza. It is believed to be due to a disturbance of the mechanism controlling the cerebral blood vessels. It is best remedied by simple dietetic measures, fresh air and avoidance of disturbing factors. Sedative drugs, except under medical advice, should be scrupulously shunned. See SLEEPLESSNESS.

Inspector One who overlooks or inspects. The Home Office has inspectors of factories and mines; the Board of Education has inspectors of schools; the Board of Inland Revenue has inspectors of income tax. Local authorities have inspectors of food and for other purposes.

Inspiration Act of drawing in breath, as opposed to expiration. Analogously the word denotes influences exerted upon the human mind and spirit, and specifically those which resulted in certain scriptures being inspired of God (2 Tim. iii., R.V.). The nature of this inspiration has been much discussed. The older view, that of verbal, plenary or mechanical inspiration, is mostly displaced nowadays by that described as dynamical, essential or vital. Under this it is held that the Bible contains the Word of God, and that the inspiration lies, not in the manner of the record, but in the value of the revelation.

Instinct Term which is defined in different ways according to the school of psychology. It may be expressed generally as an inherited or innate capacity for the performance of certain actions in response to a particular stimulus without previous inference or teaching, or it may be defined as the fulfilment of certain fundamental needs, such as the satisfying of the desire for food. Instincts are seen at its best in the activities of ants, bees and wasps.

Institute Word meaning something that is set up, a variant being institution. There are institutes and institutions of all kinds in Great Britain, e.g., poor law institutions.

The Institute of France, established in 1795, was formed to group together the five great learned societies of that country; the French Academy, the Academy of Inscriptions and Belles Lettres, the Academy of Sciences, the Academy of Fine Arts and the Academy of Moral and Political Sciences. The number of its members is 228 and the headquarters are in Paris.

The Institut Français is an educational centre in London, its object being to promote a knowledge of France among English people. Its offices are 7 Cromwell Gardens, S.W. 11.

An institutional church is one that undertakes social and educational work of various kinds, as well as the ordinary religious activities. The first was established in Boston in 1894.

Insulation Term in electricity expressing the resistance to the

passage of an electric current by certain substances known as insulators. Dry air and gases are almost perfect insulators, while among solids, ebonite, rubber, paraffin wax, mica, porcelain and gutta percha are most used.

Insulin Extract obtained from the pancreatic glands of oxen. It is taken from islets in the pancreas, and is much used in the treatment of diabetes. It was discovered by F. G. Banting.

Insurance Method of providing by regular payments for an event, either certain, such as death, or possible, such as fire. To-day insurance is an enormous business conducted by companies with vast funds and wide ramifications. In Great Britain special legislation has been passed to protect insured persons, and the affairs of insurance companies are to some extent supervised by the state. Each policy, this being the name for the contract between the insurer and the insured, must conform to certain conditions and must be stamped.

Some companies deal in only one kind of insurance, but most of them conduct almost all classes of business. This may be divided into life, fire, marine and accident, but there are other branches; the insurance of machinery and boilers, of aircraft and of plate glass. Each has its own conditions and its own experts. Farmers can insure their crops and their cattle; holiday makers can insure against loss, owing to bad weather, and parents can insure against the failure of children, owing to illness, to attend school. In addition unusual risks, such as the failure to hold a seat at a general election, or the missing of a boat to America, can be insured against at Lloyd's.

Policies of life insurance are taken out for a fixed sum, and the premiums paid at stated intervals. The sum insured for may be payable at a certain age, say 65, if the insured reaches that age, and some policies have bonuses added to them. The amount of the premium varies with the age, sex and health conditions of the insured. Practically all property is insured against fire, and many people find it convenient to take out a combined policy that covers their possible loss, not only in the event of fire, but also against burglary and accident to servants.

Marine insurance is a highly specialised branch. All vessels and their cargoes are insured, and any loss is borne on the principle of 'average, this being worked out by average adjusters. Insurance against accident is a newer branch and much of it is concerned with motor cars. Since 1930 every motorist must be insured against third party risks.

Two other forms of insurance are very popular in Great Britain. **Industrial insurance** is a special branch and is controlled by special laws. Much of it is done by the friendly societies, but large companies also exist for the purpose and some of these have accumulated very large reserves. The premiums are collected by paid agents every week, and the societies are thus called collecting societies. The policies are chiefly life policies, and a good many are to provide funds for burials. Life policies of this kind must not be for more than £300, and to prevent abuse no one can take out a policy on the life of a child for more than £15, and this can only be done by the parent or other near relative.

A form of insurance is conducted by some of the great national newspapers. By becoming a regular subscriber a person can be insured

against accident. The terms are laid down in the newspaper itself. Very large sums are given in case of death in a railway accident, a comparatively rare occurrence, but smaller sums for road accidents. Quite apart from this insurance work are the state schemes for insurance against ill-health and unemployment, which affect some 15,000,000 workers. See HEALTH; UNEMPLOYMENT.

INSURANCE AS A CAREER. The possibilities offered by insurance as a career are considerable for the man with some mathematical ability and keen commercial instincts. The four branches of insurance, fire, marine, accident and life are usually separated. Each has many departments, and ample scope for the able man.

Insurance is entered by the post of Junior Clerk for which a secondary education is essential, and matriculation is very generally called for. When university men are employed higher starting salaries are paid. As a rule the commencing salary is anything up to some £70 or £80 per annum.

The Chartered Insurance Institute, 11 Queen Street, London, E.C. 4, holds Insurance examinations, and through its local Insurance Institutes in various parts of the country arranges classes for all engaged in insurance. An associateship is conferred on a candidate who shows proficiency in any one of the four branches of Insurance—fire, life, accident and marine, whilst a candidate for Fellowship must possess in addition a general knowledge of all the branches of insurance and also of the subjects, Principles of Commerce, Banking, and Finance, and Elements of Commercial and Company Law.

Intellect General term for the activities of the mind in reference to the power of understanding and reasoning, the power of perception and thought and of synthesising isolated sensations. The term intellect has been used by philosophers in many senses from Aristotle downwards. Pure intellect according to Kant is intellect as separate from sense.

Intelligence Term which, in the general sense, may be defined as the fundamental and inborn ability to learn by experience and to employ the means to obtain the end in view. It is used, however, with a variety of shades of meaning; some regard intelligence as equivalent to cognition, others as expressing the average mental ability indicated by various intelligence tests. Obviously there is a wide range in degree and intensity between the dawning intelligence of an ape and the matured mind of man.

Intelligence Department

Department of a navy, army, public department or business that exists to collect information. Every government keeps a secret service department which is sometimes called an intelligence department. In Great Britain this is under the Foreign Office and exists to keep the authorities acquainted with happenings in foreign countries.

The army has an intelligence department under the director of military operations and intelligence, and the air force has a similar department. In the navy there is a director of intelligence.

Intelligence Test Means of examining or measuring the amount of intelligence in an individual. Apart from ordinary examinations, several

systems of tests are in use. Generally an intelligence test consists of carefully framed questions or a set of directions to be followed, or again asks to be performed. In some systems, speed of response to the questions or work is important. These tests are of especial value in grading school children.

Interdict Ecclesiastical punishment pronounced by the pope or some other high official. It may be either general or local. The most famous general interdict was when Pope Innocent III. placed England under one. This meant that no religious services could be held, but it was impossible to enforce it completely.

In Scotland an interdict is a legal term corresponding to the injunction of the English courts of law. See INJUNCTION.

Interest Money paid for the use of money. It is paid at a fixed rate, usually yearly, or half-yearly, or quarterly, for the use of a loan. The money paid for a mortgage is interest, and when it is paid income tax must be deducted. The rate of interest is governed by the law of supply and demand, and also by the quality of the security offered. The bank rate is an indication of the interest charged on loans for short periods. Dividends are not, strictly speaking, interest on money lent, but profits on trading. Interest may be either simple or compound. Compound interest is interest on interest, and mounts up at an enormous rate. At compound interest of 5 per cent. a sum of money will double itself in about 14 years.

Interlaken Pleasure resort of Switzerland, on the Aar in the canton of Berne, 17 m. from Thun, it is the centre of the district called the Oberland. Near is Lake Brienz and overlooking the town is the Jungfrau. Pop. 3700.

Interlocutor Term used in law. Interlocutory proceedings are those which take place between the beginning of an action and the trial. Such include interrogatories and applications in chambers. In Scotland an interlocutor is an interim judgment.

Intermezzo Short burlesque or play of a light, amusing character. It is usually given in an interlude of a performance of grand opera or drama.

In music, a brief composition to be played in the interval of a longer work, or for ordinary rendering, is called an intermezzo.

International Socialist movement in which socialists from many countries are united. There have been three such movements or Internationals, and each has held several congresses.

The first international accepted a programme drawn up by Karl Marx and lasted from 1866 to 1872. The second international, in which there was a trade union element, was organised in 1882. It sought to compass the aims of socialism by constitutional, not revolutionary, action, and it held several congresses between 1882 and 1930. The third international was organised in Moscow and was revolutionary in its aims. It declared in favour of establishing communism by force.

International Labour Organisation International body, associated with the League of Nations and established at Geneva. Its centre is the International Labour Office. Repre-

sentatives of the principal industrial nations are included on the governing body. The office organises conferences, dealing with labour matters, at which governments, employers and workers' organisations are represented, with the object of raising the standard of labour in less advanced states to the level of that in other countries.

International Law Body of law regulating the relations between nations, especially in time of war. It differs from other bodies of law in that there exists no power to enforce its decisions, but much is expected from the increasing force of public opinion.

The Romans recognised something like international law in what they called *jus gentium*, or the law of nations, and the idea never entirely died out though it had little practical value. In the Middle Ages and later certain customs were observed, and to give clarity to those, Hugo Grotius in 1625 wrote his *De Jure Belli et Pacis*, or the law of war and peace. This founded modern international law. It is contained in customs, treaties and declarations, such as the Convention of Geneva, and deals with such matters as the treatment of prisoners and wounded, contraband and blockade, the rights of neutrals and the special conditions of maritime and aerial warfare. The Hague Conferences have done something to strengthen and widen its authority. International law is administered by the prize courts and the court of international justice at the Hague, sometimes called the Hague Tribunal.

The Institute of International Law is a society founded in 1873 to study the subject. Some universities have professors, or lecturers, in this branch of law, on which a number of books have been written.

Internment Detention of soldiers and civilians of a hostile or neutral state during times of war. By international law all troops entering a neutral country must be interned or kept in that country until peace is made. The law also applies to ships which stay in a neutral port beyond the brief time allowed. There were cases of both kinds during the Great War. The British troops who escaped from Antwerp into the Netherlands were interned there, and the United States interned German ships that did not put to sea.

Interned soldiers and sailors are usually sent to a camp called an **internment camp**. This term therefore has come to be used for a camp in which prisoners of war are kept.

Interrogatory Term used in English law. In civil actions either party can, before the trial, seek information about the case from the other. This is put in the form of a question, or interrogatory and must be answered on oath. The interrogatories must be relevant to the issue and the masters in chambers prevent the system from being abused.

Interregnum Time between two reigns, a period when a country has no emperor or king. There was an interregnum in Germany from 1254 to 1273. The period in Britain between 1649 and 1660 was an interregnum.

Intestate Person who dies without a will. In such cases English law provides that the property shall pass according to certain rules. If a married man or woman dies, leaving a widow or widower, and there

are no children, all the property passes to the surviving wife or husband. If there are children, the surviving husband or wife takes all the furniture and personal effects and £1000 free of death duties. The remainder is divided into two equal parts. One is put in trust and the income paid to the surviving husband or wife, passing on his, or her, death, to the children. The other half passes to the children, or to the child if there is only one. If a child of the intestate has died leaving children, such children inherit their parent's share.

If an unmarried person, or a widow or widower, without children, dies, the property passes to the parents. If they are dead it passes to the brothers and sisters in equal shares, and if there are none, to more distant relatives. If there are no relatives the estate passes to the crown.

These rules date from 1925. Before that time the real property of an intestate passed to the eldest son, and the personal property to the widow or widower or children, the widow or widower receiving one-third. In 1925 the distinction between real and personal property was abolished.

Intestine Lower part of the alimentary canal. It reaches from the pyloric end of the stomach to the anus and is called also the guts or bowels. Receiving the bile, pancreatic and intestinal juices, it completes the digestive process, nutritive matters entering the blood vessels and lacteals, and refuse matters being excreted. It averages in man 30 ft. in length and is lined throughout with mucous membrane. It includes the small intestine, 24 ft. long, comprising duodenum, jejunum and ileum, and the large intestine, 6 ft. long, comprising caecum, colon and rectum.

Intestinal Obstruction is usually caused by acute constipation or a diseased state of the bowel.

Symptoms.—Pain, and vomiting, first bilious and later "faecal" in nature. There may be diarrhoea at first until the part of the bowel below the obstruction is emptied, after which nothing will pass. The condition is very serious and a doctor should be called at once. In the meantime nothing should be given by the mouth.

Intimidation Act of causing a person to do something or to refrain from doing something by threats. In English law, intimidation of this kind is an offence and an M.P. or councillor can be unseated if intimidation is proved against him or his agent.

Intoxication Poisoning of the body by drugs or alcohol, etc. In common usage the term denotes the effects produced by alcohol (*q.v.*). **Auto-intoxication** is "self-poisoning," by the action of toxins produced within the body. These may arise from defective metabolism, or from the presence of a septic focus (*e.g.* in mouth, nose or bowel) and the consequent activity of harmful bacteria.

Intuition Power of perceiving a truth immediately without any kind of reasoning. Some moral philosophers hold that certain moral values are intuitive. Men have an intuitive knowledge of right and wrong; they have no need to reason about it. This was taught by Francis Hutcheson and later by James Martineau. The opposite doctrine is that moral values are simply the outcome of long centuries of human experience.

Invalides Hotel des. Building in Paris. It is on the Champ de Mars

and was built in 1670 as a hospital for disabled soldiers. It now contains the tombs of Napoleon, Foch and other great French soldiers, as well as a collection of armour and relics of Napoleon.

Invar Alloy of steel and nickel. It is much used in the making of instruments used by scientists for measuring purposes. This is because it is less liable to contraction or expansion from heat than any other known alloy.

Invention Term applied to the discovery of some contrivance or device previously unknown. It would appear that an invention may arise either as the result of numerous experiments, exhausting all possibilities, or as a sudden inspiration. From a practical standpoint the utility and ability of the device to work is essential. To protect an invention it must be registered at the Patent Office in London.

Inventory Word meaning a list of goods or other property. Such are compiled when a furnished house is let, or the estate of a dead person is wound up. An inventory of the goods concerned is generally attached to a bill of sale.

A duly formerly paid in Scotland on the personal estate of deceased persons was called the **inventory duty**.

Inveraray Burgh and county town of Argyllshire. It stands at the mouth of the River Aray, just where it falls into Loch Fyne, 40 m. from Glasgow. Inveraray is best reached by steamer. Pop. 500.

Invercargill Town of New Zealand, in South Island, 140 m. from Dunedin, and standing on the estuary of the New River. It is the centre of an agricultural district and has some manufacturing industries. Bluff Harbour is its port. Pop. 22,900.

Inverclyde Baron. Scottish title borne by the family of Burns. Sir George Burns, one of the heads of the Cunard Line of steamers, left a son, John, who was made a baron in 1897. He died in 1905 and two of his sons succeeded in turn to the title. The younger, James Cleland Burns, died Aug. 16, 1919, when his son, John Alan Burns, became the 4th baron. The family seat is Castle Wemyss in Renfrewshire.

Inveresk Village of Midlothian, on the Esk, 6 m. from Edinburgh, by the L.N.E. Rly. Here are large paper mills.

Inverforth Baron. Scottish shipowner. Andrew Weir was born at Kirkcaldy, April 24, 1865, and became a clerk in a shipping office in Glasgow, where he founded the business of Andrew Weir & Co., which became a large and flourishing firm. In 1917 Weir was engaged at the War Office with the supply of munitions to the forces. From 1919 until 1921 he was Minister of Munitions.

Invergordon Burgh and seaport of Ross and Cromarty, on Cromarty Firth, 13 m. from Dingwall, by the L.M.S. Rly. The chief industry is shipping. During the Great War it became a naval base and is still used for that purpose. Pop. 1050.

Inverkeithing Burgh and seaport of Fife, on the Firth of Forth, 13 m. from Edinburgh, on the L.N.E. Rly. During the Great War Inverkeithing was a busy naval base. Pop. 3356.

Inverlochry Village of Inverness-shire on the River Lochy, 1 m.

from Fort William. Here, on Feb. 2, 1645, Montrose gained one of his victories. Sir W. Scott describes the battle in *The Legend of Montrose*.

Inverness Burgh and market town of Inverness-shire; also the county town. The recognised capital of the Highlands, Inverness stands on the north side of the River Ness near where it falls into the Moray Firth. It is 160 m. from Edinburgh and 100 from Aberdeen, on the L.M.S. and L.N.E. Rlys. It is also on the Caledonian Canal. There are some historic houses and the Stone of the Tubs is the burgh's proudest possession. The industries are distilling and railway works, and there is a large agricultural trade. Inverness is a popular tourist resort. Pop. (1931) 22,300.

Inverness Seaport of Nova Scotia, on Cape Breton Island at the mouth of the Big River. The terminus of a railway line, it is 186 m. from Halifax. Its trade is chiefly the shipping of coal. Pop. 2963.

Inverness-shire County of Scotland; the largest in the land. It covers 4210 sq. m., has an indented coast line on the west and consists of two portions, one the mainland, the other consisting of Skye, Harris, North Uist, South Uist and many other islands of the Hebrides. The Caledonian Canal cuts the mainland area into two parts. Inverness is the capital. Other places are Fort William and Kingussie. The shire, with its many lochs and valleys between the mountains, contains wild and beautiful scenery. The soil is unfertile and most of it is devoted to deer forests and grouse moors, with only a small portion for sheep rearing. The chief rivers are the Spey, the Ness and the Beaulie. In the county are Ben Nevis and other lofty mountains. It is served by the L.M.S. Rly. Pop. (1931) 82,082.

Inversnaid Village of Stirlingshire, on the east side of Loch Lomond, and a calling place for steamers which meet the coaches here. The scenery around is very beautiful.

Invertebrate General term for those animal types which are devoid of a backbone and other characters such as a dorsal tubular nerve cord, the possession of gill slits at some stage, a ventral heart, etc., seen in the vertebrate animals. The invertebrates include the molluscs, arthropods, worms and lower types.

Inverurie Burgh of Aberdeenshire, on the Urie and Don, at the point where the two rivers meet, 540 m. from London by the L.N.E. Rly., and 16 m. from Aberdeen. Cattle markets are held, and there are railway shops and paper mills. Pop. 4425.

Investiture In feudal times the ceremony by which a lord handed property to a vassal. It usually took the form of the vassal swearing an oath and then receiving something as a symbol of possession, for instance, a clod of earth.

The investiture controversy, as it was called, arose when the Church forbade bishops, abbots and other holders of land to receive investitures from laymen. The matter was complicated because the land went with an ecclesiastical position such as a bishopric, so that the kings and lords were investing clerics, not only with land, but with offices.

In 1075 Pope Gregory VII. (Hildebrand) ordered this practice to cease, and there was a bitter struggle between him and the Emperor

Henry IV. Henry at length submitted, but the fight soon began again, and continued until 1122 when the Concordat of Worms was made between the Emperor Henry V. and the Pope. The Emperor gave up the right of investing with ring and staff, which he left to the Pope, but retained the right of investing the prelates with lands or temporalities. This became the law in the case of other rulers and lords. In England a similar struggle took place between Henry I. and Anselm. It was settled on the same lines in 1107.

Invincibles Irish secret society. It consisted of Fenians, and was responsible for a number of murders and other outrages between 1880 and 1885. The murderers of Lord F. Cavendish in Phoenix Park in 1882 belonged to this gang.

Several British battleships have been named the *Invincible*. One was a battle cruiser sunk in the Battle of Jutland in 1916. She carried eight 12 in. guns and was 555 ft. long.

Io In Greek mythology the daughter of the first King of Argos. She was beloved by Zeus, who turned her into a heifer to protect her from the jealousy of Hera, his wife. Hera obtained the heifer and set the hundred-eyed Argus to watch her. Zeus sent Hermes to kill Argus, but Hera put a gadfly on Io to torment her. Io wandered far till she reached Egypt where she regained her human form and her son Epaphus, was born. She is supposed to be identical with the moon goddess.

Iodine Non-metallic element widely distributed in nature. It occurs chiefly as iodides and iodates of sodium, potassium, calcium and magnesium. Its symbol is I and atomic number 53. When isolated from its compounds it is a lustrous, bluish-black solid, which volatilises at 107° C., forming a violet coloured vapour. The main supply is from the impure Chile saltpetre, or caliche, of South America, but large quantities are obtained from kelp or seaweed.

Iodoform Substance used as a mild, general surgical antiseptic. It is prepared by the action of iodine upon ethyl alcohol or acetone with heat in the presence of an alkali. It occurs as lemon-yellow hexagonal scales having a disagreeable smell resembling that of saffron, and it is soluble in alcohol, ether and oils.

Ion Term applied in electro-chemistry to electrically charged molecules or groups of molecules formed by the dissociation of an electrolyte. On electrolysis the cations and anions proceed to the cathode and anode respectively. The term is used also for the minute particles of a gas carrying electrical charges and produced under certain conditions, the gas becoming a conductor of electricity.

Ion In Greek legend the son of the Ionian race. He was the founder of Apollo, his mother being Creusa, the wife of Xuthus. By chance his mother nearly poisoned him when he reached manhood. His fate is the subject of a play by Euripides called *Ion*.

Iona One of the Hebrides and part of the County of Argyll. It is about 3 sq. m. in area and has a few inhabitants who farm small plots of land, or are engaged in fishing. On the east side is the village of Iona.

Iona is chiefly famous for its connection with Christianity. About 563 S. Columba landed here and founded a monastery which became very famous. Later the island was made the seat of a bishop. The cathedral, which was

destroyed at the Reformation, is the property of the Church of Scotland. It was partly restored in the 20th century. There are other ecclesiastical ruins on the island, including two crosses, also a cemetery in which some of the early kings were buried. On it, too, is the chapel of S. Oran.

Ionian Name of one of the chief races that settled in Greece in ancient times. They may have arrived as early as 1500 B.C. About the 11th century, B.C., many of them settled on the coast of Asia Minor, where a district was named after them—*Ionian*. For some centuries the cities therein were very prosperous and homes of culture. Homer wrote in the *Ionian* dialect.

Ionian Islands Islands of Greece, off the west coast in the Ionian Sea. The chief are Corfu, Cephalonia, Zante and Ithaca, and altogether they cover 1100 sq. m. Like Greece, the islands are mountainous, but in the valleys the soil is very fertile. The chief town is Corfu on the island of that name. For some time the islands belonged to Venice. From 1811 to 1864 they were under British protection, being then handed over to the new kingdom of Greece.

Ionic Order One of the three orders of Greek architecture. It is characterised by having more slender proportions than the Doric, with profusely ornamented mouldings. The frieze is usually plain, and the column has fine flutings with intervening fillets or flat spaces. The base is richly moulded and the cornice adorned with volutes at the corners.

Iowa State of the United States. It lies to the west of the Mississippi and is an agricultural district, maize being the chief crop. Coal is mined. Des Moines is the capital. Sioux City and Davenport are the next largest towns. The area is 56,150 sq. m. The Missouri and the Des Moines flow through the state. Iowa sends two senators and 11 representatives to Congress. For local affairs there is a legislature of two houses. Iowa became a state in 1846. Pop. (1930) 2,170,939.

Ipecacuanha Dried, knotted roots of *Psychotria ipecacuanha*. It is a native of Brazil and is exported chiefly from Rio de Janeiro in the form of small pieces, having a beaded appearance. The drug has an acrid, bitter taste and faint odour, and is used as a powerful emetic and expectorant, its properties being due to an alkaloid emetine.

Iphigenia In Greek legend, the daughter of Agamemnon and Clytemnestra. Artemis, provoked by the slaying of her favourite hart, becalmed the Greek fleet, destined for Troy, at Aulis. To propitiate her the soothsayer, Calchas, ordered the sacrifice of the princess, but this was averted by the goddess substituting another victim, and transporting Iphigenia to the Tauric Chersonese. There, although as a priestess she was bound to sacrifice shipwrecked mariners, she saved her brother, Orestes, and his friend, Pylades. The story inspired two plays by Euripides.

Ipswich City of Suffolk; also the county town and a river port on the Glipping, 69 m. from London, and is served by the L.N.E. Ry. The gateway built by Wolsey still stands. The Great White Horse Inn is mentioned in *The Pickwick Papers*. With Bury St. Edmunds, Ipswich gives its name to a diocese created in 1914. The industries include engineering works, tobacco factories,

and chemical works. Clothing and agricultural implements are made. There are docks for the shipping. Pop. (1931) 87,557.

Ipswich Town of Queensland. It is 24 m. from Brisbane by ry., and is situated on the River Bremer. It is an agricultural centre, and there are woollen manufactures and railway works. There are coal mines near. Pop. 23,000.

Iquique City and seaport of Chile. It is 150 m. to the south of Arica. The centre of the city is the Plaza Prat. There are manufactures, but the chief industry is the shipping of nitrate, guano, silver, and other metals. Before 1883 Iquique belonged to Peru. Pop. 37,400.

Iran Old name for Persia. Iranian is the name of a language group which includes the Persian and Zend languages, and is allied to the Baluchi, Kurd, and other languages.

Iraq Country of Asia. It lies between Persia and Arabia and stretches from Syria to the head of the Persian Gulf. Its area is 177,148 sq. m. The chief rivers are the Tigris and the Euphrates. The capital is Bagdad; other places are Basra, the chief seaport, and Mosul. The country is rich in oil and exports cotton, wool, barley, and other forms of agricultural produce. There is a railway system and some good roads. The unit of currency is the gold dinar, worth £1 and divided into 1000 fils. The country is governed by a king and a cabinet. There is a parliament of two houses—a senate and an elected assembly. A system of justice has been established with a supreme court at Bagdad. Great Britain has an air force in the country, and there are some British officials. The chief languages spoken are Arabic and Kurdish.

Formerly part of Mesopotamia and included in the Turkish Empire, Iraq was made a state in 1919. It was ruled by Great Britain, under mandate from the League of Nations, and in 1921, Faisal, a son of the King of Hejaz, was chosen king. In 1927 Great Britain, by treaty, agreed to recognise Iraq as an independent state, and to support its entrance to the League of Nations. The chief British representative is the high commissioner. Pop. 2,850,000.

Irawadi River of Asia. It rises in Assam, but most of its course is in Burma, and it falls into the Bay of Bengal near Rangoon, where its several mouths form a delta 20,000 sq. m. in area. It is 900 m. long, most of its course being navigable, and its main tributary is the Chindwin. Mandalay is on the Irawadi, which is sometimes spelt Irawaddy, a name meaning great river. It is much used for the carriage of timber from the interior of Burma.

Ireland Country of Europe. Since 1922 it has been divided into the Irish Free State and Northern Ireland, each with its own government. The area of the whole country is 32,586 sq. m. and it is divided into four provinces and 32 counties. The provinces are Leinster, Munster and Connaught in the Free State, and Ulster mainly in Northern Ireland.

Ireland has a wonderful coastline, and its bays form some of the finest harbours in the world. Notable are Cork and Waterford on the south coast. Others include Belfast, Carlingford, and Strangford Loughs, Galway Bay, Dingle Bay, Bantry Bay, Donegal Bay and Dublin Bay, the mouth of the Shannon

IRELAND



Kilometres 0 50 Scale 1:2,350,000 (40 miles = 1 inch) 0 50 Statute Miles

and many others. The chief river is the Shannon, which is used to generate electric power. The other rivers include the Suir, Barrow, Noie and Slaney, forming one group, the Blackwater, Lee and Bandon in the southwest, and the Boyne and Foyle in the north. Others are the Liffey, on which Dublin stands, and the Erne. There are many lakes of which Lough Neagh is the largest. The few islands, chiefly off the west coast, include the Aran and Achill groups, Rathlin, Tory and Valentia.

There are several mountain ranges, but the centre of the country is a large plain. In Kerry are Macgillcuddy's Reeks, one of which is Carruntuohill or Carnatua, the highest peak in the land. The mountains of Wicklow on the east side, and of Connemara on the west, are remarkably picturesque. In the north are the Mourne Mountains on one side of the land and the hills of Donegal on the other. In the centre is a good deal of bog, the bog of Allen being the largest stretch, but elsewhere the soil is fertile, and the herbage specially suitable for horses. Cereals and potatoes are grown; cattle and a large number of pigs are reared. The island has a good railway system and several canals. Dublin, Belfast, Cork and Galway are the capitals of the four provinces. The three towns next in size are Limerick, Londonderry and Waterford.

In early times Ireland was a centre of Christianity and learning, and there are still many remains of its religious houses. It was ruled by a number of kings and chiefs, who were more or less subject to a high king at Tara, and it had its own system of law, the Brehon. In the 8th century and later it suffered a good deal from the inroads of Scandinavian pirates, and their defeat at Clontarf by Brian Boru in 1014 is regarded as a decisive event.

In the reign of Henry II. Ireland became definitely associated with England, and henceforward it was, in a sense, an English possession. John called himself Lord of Ireland, and until Henry VIII. took the title of king, Lord was the rank of the English sovereign there. Much land was taken from the natives and given to English settlers, and there grew up side by side two distinct races, one dominant and landholding, the other servile and landless. Later, when the Reformation had done its work, the antagonism between the two was made much worse by religious antagonism, as the Irish were Roman Catholics while the English were mainly Protestants. As in England the monasteries were dissolved at this time.

The English lived within the district around Dublin called the Pale, and there filled the offices of state and controlled the parliament that had been formed on the model of the one in England. The English king was represented by a lord deputy.

The antagonism between the two races and creeds, as may be expected, grew steadily worse, and in the time of Elizabeth it came to a head. During her reign there were constant and terrible wars in Ireland, the struggle being conducted as if the combatants were wild beasts and not men. In the end the English prevailed and Ireland sullenly accepted the alien rule. In the 17th century James I. settled, or planted, Scotchmen in Ulster and Stafford, as lord deputy, did a good deal for Irish trade and commerce. The former step, however, led to a rising, and in 1642 there was another orgy of massacre and ruin, this time in the north. This was put down, and at the end of the civil war came the conquest of Ireland by Cromwell, another period of terror

leading to still more bitter memories. For a short time Ireland sent representatives to the parliament in London.

The struggle between William III. and James II. was fought out in Ireland, and when it was over a new period of Protestant ascendancy began. Roman Catholics could hold no offices whatever, nor even possess land in their own country. Equally rigorous were the restrictions on commerce, which forbade anything that might possibly compete with English traders. This state of affairs lasted for a good part of the 18th century, but after 1750 there was some relaxation. The laws against Roman Catholics were made less severe, and the trading restrictions removed. In 1782 Ireland was given legislative independence, but the right to vote and sit in Parliament was still confined to Protestants. From the intellectual and artistic point of view this age (1750-1800) was perhaps the most brilliant in Irish history.

In 1798, with Britain at war with France, there was a rising in Ireland, but this was quickly crushed at Vinegar Hill. In 1800 the parliament was abolished and the United Kingdom of Great Britain and Ireland came into being. Roman Catholic emancipation did not, however, as was promised, accompany this union, but was delayed until 1829. Conditions seemed somewhat better when the terrible potato famine broke out in 1845. The population, which had grown very rapidly, was reduced by starvation and emigration to about half its former figure.

For the rest of the century the history of Ireland was one of agitation against English rule, except in Ulster, where the English connection was fiercely valued. One set of agitators—Whiteboys, Fenians, and the rest—succeeded another, and murder and outrage were common. Members, called nationalists, were elected to Parliament to work for some degree of independence for their country and, sympathising with them, Gladstone three times tried to give Ireland home rule. He failed, however, to convince the English people of the wisdom of this policy, which was opposed bitterly by the Protestants of Ulster.

In 1914 a measure of home rule was granted, but the outbreak of war prevented its operation. When the struggle ended, a new party (called Sinn Féin) dominated the country. They refused to have any connection with England, and set up an Irish Republic, a step which was followed by two or three years of terrorism, as bad as anything even in the history of Ireland.

In the end a treaty was made in Dec., 1921. By this the Irish Free State was created, and the six counties that refused to be separated from Britain were formed into a separate state known as Northern Ireland.

The bulk of the Irish people are Roman Catholics. The Irish Church is under the archbishop of Armagh, three other archbishops and a number of bishops. The Protestant Church (the established church until 1869, when it was disestablished and its archbishops and bishops ceased to sit in Parliament) has two archbishops, at Armagh and Dublin. Another strong church, especially in Ulster, is the Presbyterian Church of Ireland.

Irene Empress of Byzantium. Born in Athens about 752, she married the Emperor Leo IV. in 769. In 780 she became regent for her son Constantine VI. When he became old enough to rule for himself, his mother had him blinded and imprisoned and she herself reigned as empress until 802. In

that year her enemies united against her and she was banished to Lesbos. In 803 she died. Irene's influence at the Council of Niceas was directed towards the restoration of image worship. For this the Greek Church regarded her as a saint.

Ireton Henry. English soldier. Born at Attenborough, near Nottingham, he went to Trinity College, Oxford, and studied law in London. In 1642 he joined the parliamentary army, and was one of its leaders at Marston. He was closely associated with Cromwell, whose daughter, Bridget, he married in 1646. In 1645 he was elected an M.P., and he was one of those who tried to arrange peace between the king and his foes, and later was one of the judges of Charles, signing the death warrant. In 1649 he went to Ireland and had just succeeded Cromwell as lord deputy when he died at Limerick, Nov. 26, 1651. In 1660 his body was disinterred and hanged at Tyburn.

Iridium Metallic element having the symbol Ir and atomic weight 193.1. It is found in nature associated with platinum, also as a natural alloy (osmiridium) with osmium. Iridium is a white, extremely hard metal which strongly resists corrosion. It is used in alloy form for tips of gold nibs of fountain pens, and for electrical contacts.

Iris Character in Greek mythology. She was the daughter of Thamas and Electra, and the messenger of Hera and the gods. One story makes her the mother of Eros. The word in Greek means rainbow.

Iris Circular, coloured membranous curtain in front of the crystalline lens of the eye and having a central aperture known as the pupil. It is provided with radial and circular muscle fibres, which enable the iris to contract and enlarge, thus regulating the amount of light entering the eye.

Iris Genus of hardy flowering plants. They are of two classes, bulbous and non-bulbous. There are many varieties of each, these being known as Spanish, Japanese, English and Dutch irises. For the bulbous iris, sandy loam with peat or leaf mould is most suitable. Marshy soil is good for the Japanese iris. The Dutch and Spanish varieties prefer a warm, light soil.

Irish Free State Dominion of the British Empire. It includes all Ireland except six counties in the north-east. Its capital is Dublin, and the next most important cities are Cork and Galway. The area is 26,600 sq. m. and the population 2,972,000. Erse is the national language, but English is recognised. The Free State is a member of the League of Nations.

The Free State came into existence in 1922. It is governed by a governor-general, representing the king, and a parliament of two houses—the Senate and the Dail Eireann—with a council of ministers as the executive. It is represented in London by a high commissioner and in Washington and elsewhere by ambassadors.

The country has a system of administering justice largely based on the English model, as is its system of local government with county, town and urban district councils. Dublin and Cork have a paid official called the manager, as well as an elected council. There is a defence force, but naval defence is undertaken by Great Britain. Agriculture and fishing are the main industries, and there are some manufactures in the cities.

The railways have been united into a single system, the Great Southern Railways. There are several canals, and electric power is obtained from extensive works on the Shannon.

With Arthur Griffith at its head, a provisional government got to work in the Free State early in 1922. Steps were taken to crush those who would not accept the new order, and in the midst of the trouble Griffith died. His successor was W. T. Cosgrave, whose party was successful at the first general election held in Dec., 1922. For ten years Cosgrave remained president of the executive, and in spite of certain difficulties the country made great progress. Its obligations were honoured and it was a recognised member of the British Commonwealth. The elected members of the republican party refused at first to take the oath of allegiance, but after a time they changed their attitude and under Eamon de Valera (q.v.) took their seats and became the official opposition. Each general election, however, returned a majority for the party that supported the treaty of 1921. Various reforms were carried out and in 1925 a treaty with Great Britain relieved the Free State of its share of the national debt.

In Feb., 1932, there was another general election and a change. The republican party, by uniting with Labour and the independent members, secured a majority in the Dail and de Valera took Cosgrave's place as president. His ministry decided to abolish the oath of allegiance and then refused to remit to Great Britain the interest due on the money borrowed for the purchase of land. Efforts at a settlement failed, and Great Britain in July took measures to collect the money due by taxing imports from Ireland. In return the Free State decided to tax imports from Great Britain.

Irish Guards Regiment of the British Army. It was raised in 1900, and its first spell of active service was in 1914. During the next four years the regiment was in much hard fighting with the other regiments of the Brigade of Guards.

Irish Sea Arm of the sea between Great Britain and Ireland. It is connected with the Atlantic Ocean by the North, or St. Patrick's, Channel, and the South, or St. George's Channel. In its widest part it is 150 m. across, but in one place it narrows to under 30.

Irish Terrier Breed of terrier derived from a cross between the fox terrier and a rough coated breed, and introduced about sixty years ago. The formation of an Irish Terrier Club in 1879 established a standard of points for this class of dog. It weighs from 18 to 24 lb., and has a rough, wiry coat of a red-brown colour.

Irkutsk City of Siberia, Soviet Russia. It is 40 m. from Lake Baikal, on the Trans-Siberian Rly. Its trade is concerned chiefly with the smelting of metals. Pop. 98,960.

Irlam Urban district of Lancashire. It stands where the Irwell falls into the Mersey, 8 m. from Manchester. Pop. 12,898.

Iron Metallic element having the symbol Fe and atomic weight 55.84 with a melting point of 1505°C. It is the most widely-distributed of the metals, but rarely occurs in the metallic state, being chiefly found as oxides not only as ores but also as the colouring matter of rocks, and as a constituent of the blood of animals.

The principal ores are haematite or ses

quioxide of iron, magnetite or black magnetic oxide, and limonite or hydrated sesquioxide, also chalybite, the carbonate, which forms, when impure, clay ironstone. Iron pyrites, the sulphide, is a source of iron sulphate and sulphuric acid.

Pure iron is greyish-white in colour, soft, malleable, and easily magnetised. Pig or cast iron is hard, brittle and moderately fusible, while wrought iron is malleable and has a higher tensile strength than cast iron.

The manufacture of iron from ore is an old, widespread industry, and was in England in the time of the Romans, or perhaps earlier, charcoal being used to smelt the ore. To-day pig or cast iron is made by mixing the ore with coal, coke and limestone, and passing it through a blast furnace. It comes from the furnace and is run into moulds to form pigs, as they are called, which are graded according to quality. The furnace is heated to 1200°, or even 1400° F., and about two tons of coal are required to produce a ton of pig iron.

This pig iron is much too brittle to be used for most purposes, so it undergoes further treatment in order to convert it into wrought iron or steel. Wrought iron is made by subjecting pig iron to a process called puddling. This is done in a reverberatory furnace, by a process which gets rid of most of the carbon in the pig iron. As the carbon escapes, the fluid iron becomes pasty and is then brought away in large lumps. It is afterwards hammered into rude slabs called blooms, and rolled out to form bars or sheets.

This method of producing iron by the use of coal and furnaces was greatly developed in England in the 18th century. The furnaces were established where coal or iron ore, or both, were easily accessible, such as the Black Country in Staffordshire, the district around Middlesbrough, South Wales, and Lanarkshire. In the United States great ironworks were established at Pittsburg, and many were erected in Belgium, France and Germany.

Great Britain, once the world's greatest producer of iron, has lost that position, and for years after the Great War the industry, except for brief spells, was in a very depressed condition. In 1928 the world's output of pig iron was 88,000,000 tons. The greatest producer was the United States, with 36,600,000 tons. Germany and France each produced over 10,000,000 tons, and Great Britain only 6,700,000 tons. In the three years before the war (1911-13) the production in Great Britain averaged 9,700,000 tons. The decline is partly due to the tariffs imposed by foreign buyers, and to the partial exhaustion of the reserves of iron ore, making the industry dependent upon supplies from abroad.

The world's production of iron ore is about 60,000,000 tons. The greatest known reserves are in Sweden.

The Iron and Steel Exchange, King William St., London, E.C., is the centre for all business transactions in the iron and steel trades in Great Britain. See STEEL.

Iron Age In archaeology a cultural phase marked by the use of iron, especially for edged tools and weapons. In Europe and W. Asia it usually followed the copper-using or bronze-using phase or age; in Africa it directly succeeded the stone age. In Europe ironworking became general in the Mediterranean region about 1000 B.C.; subsequently two pre-Christian periods occurred, each of about 500 years. These are characterised especially by finds at Hallstatt and

La Tène respectively. As far as is known there was no iron age in America.

Ironclad Name used for a battleship which had a protection of iron. The first ironclad was the *Warrior*, built in 1860. The ironclads succeeded the wooden ships, and were in turn succeeded by steel-clad vessels. See DREADNOUGHT.

Iron Cross Prussian order. It was founded in 1813, and is divided into a civil and military division. There are three grades.

Belgium has an order of the same name. It was founded in 1830, and is for civilians only.

Iron Gates Name given to a part of the Danube's course. It is near Orsova in Rumania, where for about 2 m. the river narrows. This causes great rapids, and to avoid these a channel for vessels was made between 1890 and 1900 at considerable cost.

Iron Mask Man in the. Unknown French prisoner in the 17th century. He was put in the Bastille in Sept., 1638, and died there, Nov. 19, 1703. He wore a mask, probably of black velvet, during his imprisonment, and apparently no one saw his face. Many persons have tried to find out who he was, and a large literature has grown up on the subject. Dumas treats it in the *Vicomte de Bragelonne*, and in *The Man in the Iron Mask*. He may have been an illegitimate son of Anne of Austria, the widow of Louis XIII., or the Duke of Buckingham, or Nicolas Fouquet (q.v.). More probably he was an Italian, Count Ercole Mattioli, but there is no certainty.

Ironmould Name given to reddish stains on cotton or linen fabrics. It is due to the action of soluble salts of iron, as in the case of ink which usually contains ferrous sulphate. The red colour is due to the presence of ferric oxide, and the stain may be removed by the use of oxalic acid.

Ironsides Name given to the soldiers led by Oliver Cromwell. It dates from 1649 or thereabouts, and was given to them because of their steadiness in battle.

Ironsides Sir William Edward. British soldier. Born May 6, 1880, he saw active service in South Africa, and in 1914 was a staff officer. In 1918-19 Ironsides became prominent as Commander of the British forces at Archangel, and later he was in Persia. In 1928 he went out to India to command the Meerut district.

Ironstone Name given to iron ores occurring as beds, nodules in clayey deposits, or as masses filling fissures and cavities in rocks. Of these ores, haematite, limonite, and magnetite may form ironstones. Impure chalybite, or iron carbonate, in the form of clay-ironstone is common in carboniferous strata, and is a valuable source of iron.

Iroquois Confederacy of N. American Indian tribes. They included Mohawks, Cayugas, Oneidas, Onondagas and Senecas, and when they were joined by the Tuscaroras were known as the six nations. They sided with Britain in the War of Independence. To-day these tribes number about 60,000 in the United States, and 12,000 in Canada.

Irradiation Exposure to light rays. Both the luminous and the ultra-violet rays of sunlight are employed in therapeutics, and artificial sunlight is produced

by the use of the carbon arc or mercury vapour lamp. By the irradiation of inactive ergosterol (q.v.) this substance becomes a powerful source of the anti-rachitic vitamin D. See HELIOTHERAPY, VITAMIN.

Irrigation Means by which water is conveyed to arid areas from rivers or wells to increase the fertility of the land. Where rivers are the sources of the water supply, weirs (or, on a large scale, barrages) are used to raise the level of the water to that of the irrigation canals. In many instances, to conserve the supply and regulate the flood waters of a river, huge reservoirs are built, as in North America, Egypt, the Sudan, India and Australia. In Arizona, India and Australia, artesian wells are used for transforming barren tracts into fertile areas. Examples are the use that has been made of the Murray River in Australia and the huge dams built in Bombay and at Sukkur on the Indus.

The value of irrigation as a means of making land more fertile was recognised in ancient times, and there remain evidences of its use in Mesopotamia, Egypt, Italy, Spain and other countries. Then as now the water of a great river was diverted into canals, which were cut across the unfertile areas.

Irthlingborough Urban district of Northamptonshire. It stands on the Nen, and is 82 m. from London. Boot-making is the chief industry. Pop. (1931), 1609.

Irvine Burgh, market town and seaport of Ayrshire, on the river of the same name, 30 m. from Glasgow. The chief industry is the export of coal, for which there is a good harbour. There are some manufactures. Pop. (1931), 12,032.

Irving Edward, Scottish divine. Born at Annan, Aug. 4, 1792, he went to London in 1822 and, as minister of a church in Caledonian Road, and later in Regent Square, became a very popular preacher. Soon he began to preach the nearness of the second advent and in other ways gave expression to heterodox opinions. His church found him guilty of heresy, and he was deprived of his ministerial status. He then joined the group of men who founded the Catholic Apostolic Church (q.v.), sometimes called after him Irvingites. He died Dec. 8, 1834. Irving is known, too, for his association with the Carlyles. Jane Welsh was his pupil at Haddington, and he introduced her to Carlyle.

Irving Sir Henry, English actor. John Henry Brodribb was born in a Somerset village, Feb. 6, 1838. He took the name of Irving, and soon became known as an actor of unusual gifts. In 1878 he began to play in Shakespearean and other plays with Ellen Terry, the two soon becoming the acknowledged leaders of the London stage at the Lyceum Theatre. His successes were numerous, but perhaps the outstanding ones were in *The Bells*, *Hamlet*, *The Merchant of Venice*, *Macbeth*, *Faust* and *Becket*. In 1895 he was knighted, at that time an unusual honour for an actor. He died at Bradford when on tour, Oct. 20, 1905, and is buried in Westminster Abbey.

Irving had two sons, both actors. Henry Brodribb Irving was born in London, Aug. 5, 1870 and educated at Marlborough and New College, Oxford. He was a successful actor, something in his father's style, and was, for a time, a manager. He also made himself an expert in criminology, on which he wrote several books. He died Oct. 27, 1919.

The younger son, Laurence Sydney Brodribb Irving, wrote several plays and appeared regularly on the stage. He was drowned when the Empress of Ireland sank in the St. Lawrence, May 29, 1914.

Irving Washington, American writer. Born in New York, April 3, 1783, he lived rather a desultory life, chiefly because his health was poor. He read a good deal and soon began to write. From 1829 to 1831 he was secretary in the American Legation in London, and from 1843 to 1846 he represented his country in Spain. He died at Sunnyside, near Tarrytown, Nov. 28, 1859.

Irving's writings include *Diedrich Knickerbocker's History of New York*, *The Life and Voyages of Columbus*, *The Alhambra*, *Legends of the Conquest of Spain*, *A Life of Goldsmith*, *A Life of Washington* and many others. More popular, however, at least to English readers, are *The Sketch Book of Geoffrey Crayon, Gent.*—with its pictures of English life, and of Rip van Winkle and Sleepy Hollow—and *Bravebridge Hall*. He also wrote *Tales of a Traveller*, an account of his visit to Abbotsford and Newstead.

Irwell River of Lancashire. It rises near Burnley, and flows past Manchester to the Mersey. It is 30 m. long. The lower course of the river has been converted into the Manchester Ship Canal (q.v.).

Irwin Baron. English politician. Edward Frederic Lindley Wood was born April 16, 1881, being the son and heir of Viscount Halifax. In 1910 he was elected Unionist M.P. for the Ripon Division, and in 1922 he was made President of the Board of Education. Later he went to the Ministry of Agriculture. In 1926 he was made Viceroy of India, and he remained there for five eventful years, returning home in 1931. He was made a baron in 1926. In July, 1932, he joined the National Government as Minister for Education.

Isaac Hebrew patriarch. Abraham's only son by his wife, Sarah, he was born in their old age (Gen. xxi.). He married his cousin Rebekah when he was 40 years old. Their twin sons, Esau and Jacob, were born 20 years afterwards.

Isaac Name of two Byzantine emperors. Isaac I. became emperor in 1057, on the abdication of Michael VI. and was the first ruler of the Comnenus family. He reigned until his death in 1061, although after 1059 he lived in retirement. Isaac II., called Angelus, was declared emperor in 1185. His reign was troubled by wars and risings, and in 1195 his brother, Alexius, blinded him and put him in prison. He was restored for a few months in 1203, and died in 1204.

Isaacs Sir Isaac Alfred, Australian lawyer, born in Melbourne, Aug. 7, 1855. In 1880 he became a barrister, and from 1892-1901 he sat in the Legislature of Victoria, serving also as solicitor-general and attorney-general. In 1901 he was elected to the House of Representatives of the Commonwealth, and in 1905-06 he was its attorney-general. In 1906 Isaacs left politics to become a judge of the high court. In 1930 he was promoted to be Chief Justice of the Commonwealth, and in 1931 he was appointed Governor-General.

Isabella Queen of Edward II. of England. A daughter of Philip IV., King of France, she was born about 1292 and married to Edward in 1308, just after he had become king. The union was not happy, and about

1324, having become the lover of Roger Mortimer, she escaped to France. In 1326 they returned and secured the throne for her son, Edward III., Edward II. being murdered. Until 1330 Isabella ruled the country, but in that year her son asserted himself. Isabella was sent to Castle Rising, and there she lived for many years. She died Aug. 23, 1358.

Isabella Name of two queens of Spain. **Isabella I.** was a daughter of John of Castile and was born in 1451. In 1469 she married Ferdinand, who later became King of Aragon. The two conquered the Moors and united Spain into a single monarchy. Isabella died Nov. 26, 1504.

Isabella II. was a daughter of King Ferdinand VII. She was born in Madrid, Oct. 10, 1830, and became queen on her father's death in 1833. In 1843 she began to reign and in 1846 married, for reasons of state, a cousin, Francis. The union was most unhappy and, after a series of insurrections, the queen was deposed in 1870, her son, Alphonso XII., becoming king. Isabella died April 10, 1904.

Isaiah Greatest of the Old Testament prophets. A son of Amoz and of high social rank, he lived in Jerusalem. According to tradition he was slain asunder under Manasseh (Hob. xl.).

The Book of Isaiah contains long passages of incomparable beauty. It is in two parts, of which chapters i.-xxxix. were apparently rearranged to bring together the prophecies against foreign nations. Certain portions (e.g. Chapters xlii.-xlv., xxiv.-xxvii.), together with the second part (chapter lxvi.) show post-exilic influence and therefore some modern scholars believe they were written by another hand.

Isandula Settlement in Natal, near the Tugela River, 105 m. from Durban. Here, on Jan. 22, 1879, a small British force, consisting of 800 men of the South Wales Borderers and a few natives, was attacked by 14,000 Zulus. After a hard fight the British force and camp were destroyed.

Isatin Basic dyestuff. It is prepared by the oxidation of indigo with nitric acid. It crystallises in reddish-yellow prismatic crystals, which dissolve slightly in cold water but more readily in hot water and in alcohol, the solution being brownish-red in colour. Isatin is the source of a number of important dyes.

Isfahan City of Persia and the former capital. It is 200 m. to the south of Teheran, standing about 5000 ft. above the sea. It has a considerable trade and some manufactures and there are remains of its former size and greatness. In 1917 the city was occupied by a British force. The name is sometimes spelt Ispahan and its old name was Aspadana. Pop. 100,000.

Ishmael Son of Abraham and Hagar. He was exiled with his mother to the wilderness on account of Sarah's jealousy of him. He married an Egyptian, was famed as an anchor and was buried in Mecca. Mahomet claimed him as an ancestor.

Ishtar Babylonian goddess, probably the same as Astarte. She was the mother of all life and the Goddess of Love and War. She was worshipped at Babylon, where there was an Ishtar gate, Nineveh and elsewhere. There is a reference to her in Jer. xlv.

Isinglass Whitish, gelatinous substance. It is derived from air bladders of the sturgeon and other fish, and is used in

cookery and in the clarifying of intoxicating liquors.

Isis Egyptian goddess. She was the wife of Osiris and the mother of Horus. Originally she was the earth goddess and afterwards became the moon goddess. She was also worshipped in Italy and Greece.

Isis Name given to that part of the Thames that flows past Oxford. See THAMES.

Islam Word used for the Mohammedan world. It means in Arabic *seeker of peace*, and appears in the Koran as a term for the religion of Mahomet.

Islands Bay of. Name of two bays. One is in Newfoundland, being an opening on the west coast. The other is on the east side of North Island, New Zealand.

Islay One of the Hebrides, part of the county of Argyll. It is 25 m. long, covers 235 sq. m., and is almost cut in half by two lochs. Bowmore is the chief town; other places are Briggend and Port Ellen. The people are chiefly engaged in agriculture. The island is best reached by steamer from Glasgow. Islay was the headquarters of the Macdonalds, Lords of the Isles. On its most southern point is a memorial to 400 American soldiers and seamen who were drowned when the *Tuscania* was torpedoed, in Feb., 1918. Pop. 6300.

The Sound of Islay, about 13 m. long, separates the island from Jura.

Isleham Village of, Cambridgeshire, 17 m. from Cambridge and 6 from Newmarket, on the L.N.E. Ry. Near is Isleham Fen, which was partly drained by prisoners of war in 1918-19. Pop. 1650.

Isleworth Town of Middlesex. It stands on the Thames, 12 m. from London, on the S. Ry. There are some manufactures. With Heston, Isleworth forms an urban district. See HESTON.

Islington One of the 28 boroughs of the county of London. To the north of the city, it is reached by tube railways, tramways and motor omnibuses. Holloway forms the north of the borough, which is the second largest in London. Aberdeen Park is a residential district and Finsbury Park a great traffic centre. Pentonville, with its prison, is also in the borough. The name *Merrie Islington* was given to the district because of the pleasure gardens that existed here in the 18th century. Pop. (1931) 321,712.

Ismael Khedive of Egypt. A son of Ibrahim Pasha, he was born Dec. 31, 1830, and educated in Paris. In 1867 he was made khedive. Ismael is known as the khedive who had much to do with the building of the Suez Canal. He was, however, very extravagant and this led to his abdication in 1879. He died in Constantinople, March 2, 1895.

Ismailia Town of lower Egypt. Situated on Lake Timsah, it is about halfway between Port Said and Suez, and 93 m. by rail from Cairo. Established during the construction of the canal, it was, during the War, an important headquarters of the Allies. It is also famous as the scene of the first scientific assault on malaria.

Ismay Thomas Henry. English shipowner. Born at Maryport, Jan. 7, 1837, his father was a shipbuilder and he himself entered a shipping office in Liverpool. In 1867 he bought the ships which formed the nucleus of the White Star Line, and with his

partner, William Imrie, developed this line enormously. He died Nov. 23, 1899.

Ismet Pasha Turkish statesman. Born in 1884, he entered the army in 1903 and took part in the Young Turk revolution in 1908 and served in the Great War. Joining the national party he reorganised its forces. In 1922 he was foreign minister and since 1924, as prime minister of the new republic, he has taken a leading part in the reorganisation of the country.

Isobar Term used in meteorology for a line upon a map running through places where the atmospheric pressure is the same at a stated time. Isobars are shown especially on weather maps, drawn usually for every tenth of an inch, the pressure being reduced to sea-level and indicated in inches of mercury and millibars. The barometric gradient is shown by the nearness or distance between the isobars, thus where close together cyclonic weather is indicated, and where far apart anticyclonic conditions prevail.

Isocline Term used in geology for the arrangement of strata where all the beds appear to dip at a high angle in the same direction. Such beds occur in the south of Scotland.

Isocrates Greek orator. Born in 436, he was a pupil of Socrates, and founded a school of oratory in Athens. Of his speeches 21 are extant. Isocrates exercised great influence on writing and oratory, both in Greece and Rome. He is said to have committed suicide after Philip of Macedonia had defeated the Athenians at Cheronaea.

Isolation Medical term for the segregation of persons suffering from infectious complaints so as to prevent the spread of the disease. For this purpose special isolation hospitals away from a town or city are provided for cases of small-pox and certain kinds of fever and other contagious diseases.

Isomerism Term used in chemistry for compounds which have the same number and kind of atoms, but the arrangement is different in each case. Many instances of isomerism occur among the carbon compounds, thus among the paraffins the formula C_4H_{10} represents two isomeric substances, butane and isobutane, each having different physical properties.

Isomorphism Term used in chemistry, applied when various compounds have the same crystalline form. In some cases the compounds have the same number of atoms and are similarly combined, as with the two isomorphous sulphates of zinc and magnesium; in others the number of atoms differs, but the compounds have chemical analogies to each other, as with ammonium and potassium chlorides.

Isonzo River of Italy. It rises in the Alps and flows southwards into the Gulf of Trieste. Gorizia and Tolmino are on its banks and its length is 80 m. There was a good deal of fighting along this river between the Austrians and the Italians in 1915-1916 and 1917, and five battles of the Isonzo have been recognised by historians of the war.

The first battle took place in June, 1915, and on the whole victory remained with the Italians. The same may be said about the second battle, which took place in July. The third battle, a long struggle in Oct., Nov. and Dec. of 1915, was indecisive.

The fourth battle was a distinct victory for the Italians. It began on Aug. 1, 1916, and

on the 9th, Gorizia, their main objective in previous battles, was entered. The fifth and last battle took place in May, 1917, and was an Italian success. The gains, however, were lost before the end of the year, owing to the Italian defeat at Caporetto.

Isostasy Term used in physics for a state where pressure is equal on all sides of a body. An example is the case of a submerged body at rest in a liquid in a state of hydrostatic equilibrium.

In geology the term is applied to the theory of the general equilibrium in the earth's crust.

Isotherm Line drawn upon a map passing through places where the temperature of the air is the same at a stated time. The temperatures indicated by the isotherms are corrected so as to refer to the temperature value of sea-level. If those lines be regarded as the edges of isothermal surfaces meeting the earth's surface, then where the isotherms are far apart over a cold area the isothermal surface will be flat or saucer-shaped, and where close together over a hot area the surfaces will be dome shaped.

Isotope Element which, chemically, is identified with another element, but which has a different atomic weight.

Isotropy Term used in crystallography for the condition met with in crystals of the cubic system. In this a ray of light entering the crystal is only refracted just as occurs with glass, such crystals being termed singly refracting or isotropic. Between the polarisers of a microscopic, cubic crystals remain quite dark during rotation.

Israel Collective name for the Jews. Meaning "he that striveth with God," the name was given to Jacob on his way to the chosen land, and was later applied to his descendants, the twelve tribes.

Issachar Son of Jacob, and an Israelitish tribe. He was the ninth son of Jacob, the fifth by Leah. The tribe occupied land in Palestine bounded on the east by the Jordan and including the plain of Esdraelon, the scene of many decisive battles in the subsequent history of the race.

Issus Former seaport of Asia Minor, on the Gulf of Alexandretta. It is notable because here, in 333 B.C., Alexander the Great defeated the Persians in one of the memorable battles of the ancient world.

Istanbul City and seaport of Turkey, formerly known as Constantinople and the capital of the country. It stands on the Sea of Marmora and the Bosphorus. Its harbour is formed by the Golden Horn, an arm of the sea which divides the city into two parts. On the south is the old Turkish city and on the north Galata and Pera, the former being the business and the latter the foreign quarter. The Greeks, Jews and Armenians have also their particular districts and the city also includes Scutari on the other side of the Bosphorus. It is on the main railway line to Asia Minor, on the air route to the East, and has a broadcasting station (1200 M.; 5 kW.). At one time the population was about 1,350,000, but it has now shrunk to some 600,000. In 1931 it was decided to replace the city.

Istanbul is full of interesting buildings. The most notable are the Mosque of S. Sophia, once a Christian church, and the palaces once occupied by the sultans, one being the Yildiz Kiosk. There are many other mosques; the Christians have a number of churches and the Jews have their synagogues. There is a uni-

versity and several colleges. Walls and gates still surround the original city. A bridge and a bridge of boats cross the Golden Horn. The city has many manufactures and a large trade both by land and sea, but it is less prosperous than it was when it was the capital of the empire.

Istanbul, also called Stambul, stands where the Greeks built the city of Byzantium. It owes its existence and its early name to the Emperor Constantine the Great who founded it in 330. On the division of the Roman Empire it became the capital of the eastern part, and from 1204-61 was the capital of a Latin kingdom founded by the Crusaders. With the exception of this period it remained under the successors of Constantine until 1453 when it was taken by the Turks. It was the Turkish capital until after the Great War, being then replaced by Angora. It was occupied by allied troops from 1918 to 1923, when it was restored to Turkey.

Isthmian Games Festival of Greece. It was held every second year near Corinth in honour of Poseidon. It consisted not only of races and other athletic contests, but of literary competitions.

Isthmus Narrow neck of land connecting two larger land areas, or by which a peninsula is united to the mainland. The Isthmus of Suez unites the continents of Asia and Africa.

Istria District of Italy. It is at the head of the Adriatic Sea and covers 1900 sq. m., its area including certain islands. Pola is the largest town and the Queto the chief river. Until 1919 Istria was part of Austria.

Italic Form of printed type and handwriting which slopes to the right. It was first used in 1501 for an edition of Virgil by the Italian printer, Aldus Manutius, who sought to regularise the cursive script of his time. Italic type is used nowadays for expressing emphasis, words of importance, foreign words, etc.

Italy Kingdom of Europe. In the south of the continent, it forms in the main a peninsula almost surrounded by arms of the Mediterranean Sea. It includes the islands of Sicily and Sardinia, and a district in the N.E. around Trieste and Fiume that, before the Great War, was part of Austria. Its total area is 119,700 sq. m., and it has a population of 40,800,000. There are about 10,000,000 Italians in other countries. Within its borders, but outside its authority, are two little states, the Vatican and the republic of San Marino.

The country is divided into departments, but the older names for the various districts are still in use. Such are Piedmont and Lombardy in the N., Tuscany and Umbria in the centre, and Calabria and Apulia in the S. Rome is the capital. Other places with over 500,000 inhabitants are Naples, Genoa, Milan and Turin. Next in size are Palermo, Trieste, Venice, Florence, Catania, Bologna, Messina and Verona. From the historic and artistic point of view, some of these are among the most famous cities of the world, and there are many others, smaller but only a little less famous, such as Ravenna, Pisa, Parma, Modena and Mantua.

On the whole Italy is a mountainous country. In the north are the Alps and in the centre the Apennines. The rivers, although of great historic interest, such as the Adige, Tiber,

Po, Arno and Piave, are short. There is a long coastline on which are many seaports and pleasure resorts, but the harbours are not particularly good. The seaports include Genoa, Naples, Venice, Trieste, Catania, Palermo, Leghorn, Messina, Taranto, Brindisi and Fiume. Some of these are naval stations, as are Pola and Spezia.

With much rich soil in the valleys, Italy is an agricultural country. It produces large quantities of fruit, as well as wheat, maize and potatoes. The fisheries are valuable, and many of the inhabitants are fishermen. The mineral wealth is not great, but the manufactures, especially in the north, have become important, and Turin and Milan are centres of industrial activity, with textile factories, engineering works and the like. The country has a good railway system and its air services are very efficient.

Italy is governed by a king and a council of ministers. To represent the people there is a chamber of deputies and a senate, but since the establishment of the system known as Fascism, the real power has been with the council of that organisation and its head, Mussolini, occupies the position of a dictator.

The country has a large army, recruited on the principle of universal service, a navy and an air force. The people are mainly Roman Catholics, but there is no state church, and the relations between the government and the Pope are usually rather strained. There is a system of education for all controlled by the state and reformed in 1923. Under this schools and colleges are everywhere. Some of the Italian universities are among the most renowned in the world. There is a system of justice at the head of which is the Court of Cassation in Rome. The unit of currency is the lira which in 1927 was stabilised at 92.46 to the £ sterling.

Italy has a large colonial empire, chiefly in Africa. It includes Eritrea, Somaliland, Tripolitania and Cyrenaica. In Europe it has the Aegean Islands.

HISTORY. Until modern times Italy was merely a geographical expression. Rome was the heart of the great Roman empire, and when Rome fell Italy was overrun by barbarians. In 800 it became part of the empire founded by Charlemagne, and it was nominally included in the Holy Roman, or Mediaeval, Empire until its dissolution in 1806. In reality, however, it was divided into a number of independent, or practically independent states. Some of these were republics such as Venice and Genoa. Naples was a kingdom. In others such as Florence and Milan, members of a rich family, or soldiers of fortune, established themselves as hereditary rulers. The Papal States stretched across the Peninsula from Rome to the Adriatic.

Among the less important rulers in Italy was the Count of Savoy, who in 1416 was made a duke. In 1418 he obtained Piedmont and in 1713 his successor secured Sicily, which in 1720 he exchanged for Sardinia. At this time he took the title of king, and in 1815 the reigning king secured further territory in Italy.

In the 19th century the King of Sardinia was the centre of the movement for the union of Italy, and gradually the various districts came under his rule. Lombardy was secured in 1859, Tuscany and other areas in 1860. In 1861 Victor Emmanuel, King of Sardinia, was declared King of Italy. In 1866 he secured Venice and in 1870 the papal states,

except the Vatican itself. The difficulty with the Vatican, which remained outside the kingdom, was not adjusted until 1928. In 1900 Victor Emmanuel III. became king.

In 1915, Italy having broken away from the Triple Alliance, entered the war on the side of great Britain and France, and carried on campaigns against Austria. After several defeats her armies were in the end victorious, and certain parts of Austria were secured at the peace treaty. The period after the war was one of great economic and social unrest which led to the march on Rome in Oct., 1922, and the establishment of a Fascist government there. Under this régime, great economic progress has been made.

Itch Tingling of the skin. It is used for the transferable disease, scabies, which is caused by the females of a minute parasitic itch mite, especially *sarcoptes scabiei*. The remedy is soap and water, and sulphur ointment. A variety of this specific mite causes the more troublesome Norwegian itch. Barber's itch is ringworm of the beard.

Itchen River of Hampshire. It rises near Alresford and flows into Southampton Water, which it enters by a tidal estuary. Winchester stands on its banks, and it is famous for its trout and for its associations with Isaac Walton.

Another Itchen is a tributary of the Warwickshire Avon.

Itchen is the name of a suburb of Southampton. Before 1920 it was a separate urban district.

Itchen Abbas is a village on the Itchen, 8 m. from Winchester.

Ithaca One of the Ionian Islands, 45 sq. m. in extent and almost divided into two parts by a gulf. Vathy is its capital. The people are chiefly employed in agriculture and fishing. Ithaca is famous as the home of Odysseus, being the sea-girt land so often mentioned by Homer.

Ivan Name of four rulers of Russia. The first two were Grand Dukes of Moscow who lived in the 14th century. Ivan III., called the Great, reigned from 1462 to 1505. He made his territory an independent state, extended its area, issued laws, made treaties with western rulers and took as his emblem the Roman Eagle.

Ivan IV., called the Terrible, who reigned from 1547 to 1584 was the first to take the title of tsar. He carried on the work of Ivan III., but later earned the epithet of terrible by his cruelties. In 1580 he murdered his son, Ivan. He died in 1584.

Iveagh Earl of. Born Nov. 10, 1847, he was a son of Sir B. L. Guinness, Bart., and was educated at Trinity College, Dublin. He entered the firm of Arthur Guinness, Sons & Co., and was for many years its chairman. In 1885 he was made a baronet, in 1891 a baron, in 1905 a

viscount, and in 1919 an earl. He died Oct. 7, 1927, being succeeded by his son. His wife succeeded him as M.P. for Southend.

Lord Iveagh was known for his great wealth and munificent charities. He established, in 1889, the Guinness Trust, later known as the Iveagh Trust, for providing houses in Dublin and London, and gave large sums to hospitals and the like. He left one of his seats, Ken Wood, Hampstead, and some valuable pictures, to the nation.

Ivory Hard white dentine of the upper incisors or tusks of the elephant. The term is also used to include a similar but inferior substance from the hippopotamus, walrus and narwhal. It is fine-grained, translucent, uniform in texture and white or yellowish in colour. African ivory is the best for most purposes, the Asiatic variety being coarser and tending to become yellow on exposure. Ivory is used for piano keys, and also for carving into ornaments.

Ivory Coast District of W. Africa. It lies between Liberia and the Gold Coast, Colony of Great Britain, and belongs to France. It covers 122,000 sq. m. Bingerville, once called Adjame, is the capital. Ports include Grand Bassam, Assinie and Sassandra. Inland towns are Abidjan, Aboisso and Bouaké. There is a railway line and many good roads. Maize, rice and rubber are grown, mahogany is cut, and palm oil and kernels are exported. Pop. 1,742,500.

Ivry Name of two places in France. One of them is on the Eure, 42 m. from Paris. Here on March 13, 1590, Henry IV. gained a great victory over his enemies, the Guises and their friends. Macaulay's ballad on the fight is well known.

The other Ivry is a suburb of Paris. It is on the Seine, about 5 m. to the south of the city.

Ivy Evergreen shrub of the order *araliaceae*. It is found in Europe, Asia and N. Africa. It climbs by means of aerial roots, and bears two kinds of leaves, the ordinary five-lobed leathery leaves on the climbing shoots, and simple oval leaves on the flowering stems. The yellow-green flowers are succeeded by small black berries.

Ivybridge Urban district of Devonshire. It is 215 m. from London on the G.W. Rly. The River Erme flows past the town, where are the kennels of the Dartmoor Foxhounds. Pop. (1931) 4715.

Ixion In Greek story the king of a tribe in Thessaly. He murdered his father-in-law, so in order to purify him, Zeus carried him off to Olympus. There he tried to seduce Hera, so was sentenced to the nether world where he was tied to an ever-moving wheel.

JABESH-GILEAD Ancient city of Palestine. Its inhabitants rescued the bodies of Saul and his sons from the Philistines, earning David's gratitude (1 Sam. xxxi.). It was in Gilead, E. of the Jordan, but the exact spot has not been identified.

Jaborandi Plant growing in Brazil and used in medicine. From it the drug pilocarpine is prepared. It is used as a hair tonic, and internally to cause perspiration.

Jaborosa Flowering plant, growing in any warm sheltered position, and bearing white, fragrant flowers. It is propagated by separating the long, creeping stems. When this is done the plant is believed to make a shrieking noise.

Jacamar Name of a family of S. American birds. With long, straight bills, they bore nesting holes in river banks, and there lay their eggs. They are expert in catching flies, keeping long, motionless watches on tree branches. Their plumage, often brilliantly bronze-green, resembles that of humming birds.

Jack Word in its primary meaning a familiar or diminutive form of the name John. From its use as a general name for a boy or servant, it was applied to devices which supplied the place of a helper, as, for example, a boot-jack, a contrivance for turning a spit, a miner's wedge, and a screw or other appliance for raising heavy weights. It is also the name of the small ball in the game of bowls, up to which the bigger, wooden balls have to be bowled.

Jackal Carnivorous mammal of the dog genus. It is found in south-east Europe, Africa, and Asia. Often hunting in packs, jackals feed on living prey, carrion, and fruits. They can be tamed, and will interbreed with domestic dogs. The common jackal (*Canis aureus*) is 2 or 2½ ft. long, and 15 in. high. The North African variety is larger, and the so-called Egyptian Wolf larger still.

Jackass Male of the domesticated donkey. Its alleged lack of intelligence led to the name being applied contemptuously to stupid persons. One of the Australian food fishes is called the jackass fish. The jackass penguin is a S. American braying species. Several N. American prairie hares are called jackass rabbits. See LAUGHING JACKASS.

Jack Boot Heavy riding boot, with long flap reaching above the knee, stoutly protected at the instep. Troopers wore them in England in the 17th century, and they became modified into the high knee-boots of the household cavalry. The name denotes also the similar footwear of postillions, and that of modern fishermen and seamen.

Jackdaw Bird of the crow family. It is smaller than the rook, and may be distinguished by its white eyes, smaller beak, and grey neck. It can be easily tamed, but as a pet it is very troublesome and mischievous. It is common in Great Britain, and generally builds in holes in the masonry of church towers and other buildings. The food is mainly worms and insects.

Jacks Lawrence Pearsall. English theologian. He was born at Nottingham

in 1860 and educated at Manchester College, Oxford, Göttingen and Harvard. He entered the Unitarian ministry in 1887 as assistant to Dr. Stopford Brooke. He became editor of the *Hibbert Journal* in 1902 and Principal of Manchester College, Oxford, in 1915. His writings include *Legends of Smokerer*, *The Faith of a Worker*, *Constructive Citizenship* and other books.

Jackson Andrew American President. Born March 15, 1767, in 1796 he was elected a member of Congress and in 1798 was made a judge, but he made his reputation as a soldier. He led the American forces against the British in 1815, and in 1818 against an Indian tribe, in both cases successfully. In 1821-23 he was Governor of Florida, and in 1823-25 a member of the Senate. In 1828 he was elected President, and he was re-elected in 1832. He left office in 1836 and died June 8, 1845. To Jackson, who was a Democrat, is attributed the introduction of the spoils system into American politics.

Jackson Sir Barry Vincent English actor manager. Born in Birmingham, Sept. 6, 1879, he founded a company of players in 1907. In 1913 he started the Birmingham Repertory Co., to the direction of which he returned after serving in the navy during the Great War. In 1925 he was knighted. Among his productions are *Abraham Lincoln*, *The Immortal Hour*, *Back to Methuselah*, *The Apple Cart*, and several Shakespearian plays in modern dress.

Jackson Sir Francis Stanley English politician and cricketer. Born Nov. 22, 1870, he captained the Cambridge eleven in 1893, and for many years played for Yorkshire. In 1905 he was captain of England in the test matches against Australia, and he played for the Gentlemen and in other representative matches, proving himself one of the greatest all-round cricketers of his age. Jackson served in the Boer War and during the Great War commanded a battalion. In 1915 he was elected Unionist M.P. for Howdenshire, and in 1922 he was made Financial Secretary to the War Office. In 1923 he became chairman of the Unionist organisation, and in 1927 Governor of Bengal, relinquishing the latter office in 1932.

Jackson John English pugilist. Born in London, Sept. 28, 1769, in 1795, after defeating David Mendoza at Hornchurch, he became champion of England, a title he kept until 1803. In 1795 he set up a school of boxing in Bond St., London, which became very fashionable. He was acquainted with the Prince Regent, afterwards George IV., and his courtesy won him the name of Gentleman Jackson. He died Oct. 7, 1845.

Jackson Sir Thomas Graham English architect. Born in London, Dec. 21, 1835, during a long professional career, he designed buildings for several colleges at Oxford and Cambridge, and for some public schools, including Harrow and Winchester. His restoration work included Winchester Cathedral, and the great churches at Bath, Malvern, and Christchurch. Jackson was elected A.R.A. in 1892 and R.A. in 1896. In 1913 he was made a baronet, and he died Nov. 7, 1924. He wrote several books on Gothic architecture.

Jackson **Thomas Jonathan**, American soldier. Born in West Virginia, Jan. 21, 1824, he was, after Lee, the most renowned of the southern generals, during the Civil War, winning for himself the name of Stonewall Jackson. After the Battle of Chancellorsville, he was accidentally shot by his own men, and died May 10, 1863.

Jacksonville City and seaport of Florida, on the St. John's river, near its mouth in the Atlantic Ocean. There are large modern docks and a number of manufactures. Pop. (1930) 129,949.

Jacob Jewish patriarch. With Esau he was the twin son of Isaac and Rebekah. His deceit and his mother's won for him the birthright from Esau and the paternal blessing (Gen. xxvii.). He went to his uncle, Laban, whom he served for 14 years, receiving in return his daughters, Leah and Rachel, as his wives. His concluding days were passed in Goshen in Egypt, where his son, Joseph, held a high position. There he died at a great age. Jacob had twelve sons, from whom the twelve tribes of Israel were descended.

Jacobean Name given to anything associated with the name James, the Latin for which is Jacobus. The Jacobean style in furniture and architecture lasted from 1603 to 1688. Jacobean furniture is chiefly of oak, heavy in appearance, but sometimes very beautifully carved. Jacobean houses are plain in style, but are often very graceful in appearance, with fine panelling and plaster work. Charlton House, near London, and Bramshill House in Hampshire are good examples.

Jacobins French political society. It arose during the French Revolution, and consisted of men who wished for constitutional reform of moderate kind. They were named Jacobins because they met in a building in the Rue St. Honoré, Paris, belonging to the Dominican order, called in France the Jacobin. Later its members became more extreme in their views, and carried out the reign of terror, but its power ended in 1794 with the execution of Robespierre, and attempts to revive it failed. The word Jacobin was much used in Britain and Europe for the holders of extreme opinions. It was to combat these that the paper called *The Anti-Jacobin* was founded in 1797.

Jacobite Church Christian communion named after Jacob Baradaeus, missionary Bishop of Edessa (d. 578). He reorganised the Syrian monophysite church, which became powerful in the Middle Ages in Asia Minor and Egypt. The church still exists, its head being the patriarch of Antioch.

ites Name given to those who, after 1688, refused to acknowledge William and Mary (and afterwards the Georges) as rulers, believing that James II. and his descendants were the rightful kings. The Jacobites were strong in Scotland and Ireland and there were a number in England until well into the 19th century, but it ceased to be a serious movement after the rising of 1745 had been crushed.

The few remaining believers in the claim of the Stewarts to the throne call themselves Legitimists. To them Prince Rupprecht of Bavaria, descended from the daughter of Charles I., is the rightful king of Great Britain. They have associations and clubs, and remem-

ber Jan. 30, the day on which Charles I. was executed.

Jacobs **William Wymark**, English writer. Born in London, Sept. 8, 1863, he was for many years a clerk in the Post Office. He soon began to write short stories and made his name with a volume called *Many Cargoes*, 1896, followed by *Light Freights*, *Captains All*, *Ship's Company*, *Night Watches*, *Deep Waters*, and in 1926, *Sea Whispers*. He wrote longer stories in the same vein, *The Skipper's Wooing*, *Dialstone Lark*, *Salthaven* and *St. Sunwich Port*. The stories deal mainly with the humorous adventures of seamen and bargemen. Jacobs has also shown himself a master of the occult type of story, and *The Monkey's Paw* and others are masterpieces of their kind.

Jacobus Gold coin. It was struck only during the reign of James I. (hence its name, Jacobus being the Latin for James), and its value was 25s.

Jacquard **Joseph Marie**, French inventor. Born July 7, 1752, at Lyons, he followed his father's trade of weaver, and after a time invented a loom, which was a great improvement on those then in use, as it enabled figured patterns to be woven. This was patented, and with improvements is still used for the weaving of silk and other textiles, as well as tapestries, carpets, and lace. Jacquard died Aug. 7, 1831.

Jacquerie Rising of the French peasantry. It occurred in 1358, when, as the result of the ravages of the English in the Hundred Years' War and other circumstances, the condition of the peasants was very bad indeed. It began in Normandy and spread to Paris, but was soon suppressed. The name is taken from Jacques Bonhomme, a term used for the French peasant.

Jactitation In English law the making of a false pretension of marriage. If a person pretends to be married to another, the latter may sue him, or her, for jactitation of marriage. Such suits are rare.

Jade Very hard compact variety of the mineral, tremolite. It consists essentially of silicate of magnesia and lime. Two varieties occur, white jade found in China, and green jade, or greenstone, in New Zealand. A similar soda-containing mineral, jadeite, is often confused with true jade. Both minerals are used as ornamental stones.

Jael Wife of Heber the Kenite (Judges iv.-v.) The Canaanites under Sisera, a general of the King of Huzor, attacked the Israelites, but were routed by Barak. Sisera took refuge in Jael's tent, and when sleeping was treacherously slain by her—an act lauded in the Song of Deborah.

Jaffa Seaport of Palestine. Anciently known as Joppa, it stands on the Mediterranean Sea, 50 m. from Jerusalem. It has a trade in wool, olive oil, and the oranges to which it gives its name. In 1917 it was captured from the Turks by Australian and New Zealand troops. Pop. 47,700.

Jagersfontein Town of South Africa, in the Orange Free State, 48 m. from Springfontein. It is the site of an important diamond mine, in which the most perfect diamond ever discovered was found in 1895. Pop. 4,000.

Jaguar Animal of the cat tribe, found in both North and South America. It corresponds to the leopard of the old world,

but its head is somewhat larger. It averages 4 ft. in length. The colouring is a rich tan with small black spots and black-spotted rosettes; black varieties occur. It preys on monkeys, peccaries and turtles, as well as horses and cattle, and is an agile climber, resting on tree branches in the daytime.

Jain Member of a Hindu religious sect. This cult developed from Brahmanism in the 6th century, B.C., but gave up some of the main teachings of that faith, including the caste system and the Vedas. Its own religious books date from about 500 B.C. The Jains believe in the future life for almost all animate nature and refuse to kill anything. They are found in the N.W. parts of India and number about 1,000,000, chiefly prosperous traders. The Jains have built some remarkable temples, one of the finest being at Calcutta.

Jaipur State and city of Rajputana, India. It is ruled by a maharajah and came under British protection in 1818. It covers 15,579 sq. m. Pop. 2,636,600.

The city is an important railway centre. Near it is Amber, the former capital of the state.

Jaisalmer State of India. It lies to the west of Rajputana and is one of the Rajput states. Its capital is a town of the same name. The ruler is a maharajah and the people chiefly Hindus. The area is 18,000 sq. m. Pop. 67,600.

Jalalabad Afghan town. It is situated on the Kabul river, near the Khyber Pass, between Kabul and Peshawar. It was the scene of a heroic defence by a British force under Sir Robert Sale during the Afghan War of 1841-2.

Jalap Swift purgative drug. First imported from Jalapa in Mexico, it is obtained from resins in the tuberous roots of several convolvulaceous plants of the genus *Ipomoea*. It is rich in glucosides and is used in cases of dropsy.

Jam Indian title. The word, which is of Tartar origin, like khan and cham, means chief. It is borne by the rulers of Las Bela, a state of Baluchistan, and of Nawanganar, the latter of whom is the famous cricketer, Ranjitsinghi.

Jamaica Largest island of the British West Indies. In the Caribbean Sea, 90 m. S. of Cuba, it belongs to the Greater Antilles group, and was discovered by Columbus in 1494. In 1655 the English took it from Spain. A mountainous isle, with peaks reaching 7360 ft. in height, it is very fertile; agriculture flourishes, and fruit, tobacco, sugar, coffee and cocoa are produced. The vegetation is rich and the climate agreeable, but the island is subject to earthquakes and hurricanes. With its dependent islands, which include the Turks and Caicos Islands and Cayman Islands, it is administered by a governor and a legislative council.

Kingston is the capital and the chief seaport. Spanish Town is the old capital. British and American curioles are used. The area is 4450 sq. m., and the island is 144 m. long. Pop. 954,000.

Jamboree Word of American-Indian origin meaning a festive gathering of the tribes. It has been adopted by the Boy Scouts for an international rally, held periodically. The first was held at Olympia, London, in 1920. *Jamboree* is also the name of a magazine for Boy Scouts, founded in 1921.

James River of Virginia, U.S.A. It is formed by the junction of the Cowpasture and Jackson rivers, and, after a course of some 450 m., empties into Chesapeake Bay through a large estuary. Richmond is at its head of navigation, which extends for 150 m.

Another James River, a tributary of the Missouri, flows through Dakota.

James Saint and apostle. Son of Zebedee and Salome, he and his brother John were Galilean fishermen, whom Jesus called to be his disciples. He was one of the three especially honoured by Christ, and was an influential figure in the apostolic church. He was beheaded by Herod Agrippa. He is commemorated on July 25, and is the patron saint of Spain, where his shrine at Compostella was one of the most famous in Europe.

James Brother of Jesus Christ (Matt. xiii., Mk. vi.). Conflicting tradition made him a son of Joseph by a former wife or by Mary after Christ's nativity. After the Resurrection he became a pillar of the church at Jerusalem and its first bishop.

James Epistle of. Book of the New Testament. Its superscription ascribes it to our Lord's brother, Jerusalem's first bishop, whose regard for the Mosaic law was overlaid by the law of love. He addresses the infant church wherever dispersed, not Jewish Christians only, inculcating duties of practical morality, such as abstaining from sycophancy and unreasoning faith by actual works, combining in prayer, especially in seasons of suffering and sickness, and recognising the importance of the individual soul.

James I. King of Great Britain. Born in Edinburgh, June 19, 1566, the son of Mary, Queen of Scots, and Lord Darnley, he was proclaimed King as James VI. in 1567. As a child he was delicate and throughout life remained ungaily, but he had considerable abilities and was very carefully educated. His minority, marked by struggles for his person between the nobles, ended in 1583, and for 20 years he ruled Scotland. His belief in episcopacy was disliked by many of his subjects, but he maintained this policy until bishops were established. He showed energy in dealing with risings of the nobles, and on the whole his reign was successful, if unpopular. His indifference to his mother's imprisonment, and especially to her death, is generally regarded as a blot on his memory.

In March, 1603, James became also King of England, and the rest of his life was passed in that country. Failing to understand the English character, he can hardly be called a popular or successful ruler. His partiality for certain worthless favourites disgusted many, and his religious ideas were heartily disliked by both Puritans and Roman Catholics. His foreign policy was neither consistent nor wise, and his quarrels with parliament had a bearing on the troubles of the next reign. He died at Theobalds, March 27, 1625.

James married, in 1589, Anne, daughter of the King of Denmark. His eldest son, Henry, died in 1612, and the second, Charles, succeeded him. From his daughter, Elizabeth, the present royal family is directly descended.

James was something of a thinker, and in his *Basiliicon Doron* and *The True Law of Free Monarchies* he set out his ideas on government. He also wrote *Counterblaste to Tobacco*, and an attack on witchcraft.

James II. King of Great Britain. The second son of Charles I., he

was born in London, Oct. 14, 1633, and was educated by tutors in the royal palaces. His life falls into three periods. From 1633 to 1683 he was Duke of York; from 1685 to 1688 he was king, and from 1688 to 1701 an exiled and fallen monarch. In 1649 he went to the Netherlands and saw service in the French and Spanish armies. In 1660 he returned to England and as Lord High Admiral commanded the fleet in battles with the Dutch. Later he was in Scotland engaged in suppressing the Covenanters, and throughout the reign of his brother he was prominent in public life. His conversion to Roman Catholicism led to the formation of a strong party determined to exclude him from the throne, but in 1685 he became king.

The rebellion, led by Monmouth, having been crushed, James was able to carry out his ideas for making England a Roman Catholic country. Paying little heed to constitutional forms, he issued proclamations that soon raised up a host of enemies. Only three years after his accession, an invitation was sent to William of Orange to come and take the crown. So thoroughly had he alienated his people that James found himself unable to defend his throne and fled to France. In 1690 he was in Ireland, where, with French help, he made an effort to oust his rival, but the campaign failed. He then returned to France and passed the rest of his days at St. Germain. He died Sept. 6, 1701.

James married Anne Hyde, daughter of the Earl of Clarendon, who bore him two daughters, Mary and Anne, both queens. His second wife was Mary, daughter of the Duke of Modena, by whom he had a son, James Edward, known as the Old Pretender.

James Name of six kings of Scotland. **James I.**, a son of Robert III., was born in July, 1394. From 1406, the year in which he became king, until 1424, he was a prisoner in England, having been captured by some English sailors when on his way to France. He returned to Scotland in 1424 and married Jane Beaufort, a daughter of the Duke of Somerset. After much trouble with his nobles, he was murdered at Perth, Feb. 20, 1437. The king wrote poems, two of which still survive.

James II., the only son of James I., was born Oct. 6, 1430, and became king on his father's death. During his reign the Douglas family was very powerful and troublesome. He made war on England and was killed whilst besieging Roxburgh Castle, Aug. 3, 1460.

James III., the eldest son of James II., was born July 10, 1451, and reigned, at first with a regency, until 1488. In that year, urged on by the nobles, his young son rebelled against him, and after a fight near Stirling, the king was killed, June 11, 1488. He married a daughter of the King of Denmark.

James IV. was born March 17, 1473, and became king on his father's death, for which he was in a sense responsible. He married Margaret, daughter of Henry VII., and after a reign, comparatively peaceful, of 25 years, met his death at Flodden, Sept. 9, 1513.

James V., born April 10, 1512, became king when under two years old. In 1530 he began to rule for himself, but he left no mark upon his country. In 1542 the English defeated his troops at Solway Moss and on Dec. 14 of that year he died at Falkland. James married Mary, daughter of the Duke of Guise, and their only child was Mary, Queen of Scots. Her son was James VI., afterwards James I. of Great Britain.

James Baron. English lawyer. Born at Hereford, Oct. 30, 1828, Henry James was educated at Cheltenham and became a barrister. In 1868 he entered Parliament as M.P. for Taunton, and in 1873 he became Solicitor-General and then, Attorney-General under Gladstone. He returned to office in 1880 and was Attorney-General until 1885, when he became a Liberal Unionist and M.P. for Bury. In 1895 he was made a peer, as Lord James of Hereford, and he was Chancellor of the Duchy, 1895-1902. He died unmarried, Aug. 18, 1911.

James Henry. Anglo-American novelist. Born in New York, April 15, 1843, he was educated for the law at Harvard. However, he began to write, and in 1875 his first successful novel, *Roderick Hudson*,

Bowl, What Maisie Knew, The Ivory Tower, and many others. He also wrote criticisms of English and French literature of unusual value. In 1915 James became a naturalized Englishman, and he received the Order of Merit in 1916. He lived much at Rye, but died at Chelsea, Feb. 28, 1916.

James William. American philosopher. A brother of Henry James, he was born in New York, Jan. 11, 1812, and educated at Harvard. In 1881 he was made professor at that university, and he passed his life in the study of philosophy and the allied problems of psychology. He lectured in England and Scotland. He died Aug. 26, 1910.

James is regarded as one of the foremost of modern philosophers. He was the founder of the philosophy of pragmatism, and many of the problems of psychology owe a good deal to his thought which laid great stress on the results of experience. His books include *The Principles of Psychology*.

James Bay Part of Hudson Bay, Canada. A south-easterly extension of the greater bay, it lies between Ontario and Quebec, and contains many islands. It is 350 mi. long and 120 mi. wide at its widest point, and receives the waters of several rivers, being, nevertheless, shallow and brackish.

James Edward British prince, known as the Old Pretender. He was born in London, June 10, 1688, being the son of James II., and his birth had important consequences for Britain. The news that James had a son decided his enemies to act against him, and the result was the loss of the crown by the Stuarts. The young prince was sent to France and was there when, in 1701, he became nominally King of Great Britain as James III. In 1708 and 1715 he went to Scotland to try to win the throne, but soon returned to France. In 1715, when peace was made between Britain and France, he was obliged to leave the latter country. He went to Bar-le-Duc in Lorraine and later to Rome where he died, Jan. 2, 1766. He was buried at St. Peter's. He married Clementina, daughter of John Sobieski, King of Poland, and had two sons, Charles Edward and Henry.

Jameson Sir Leander Starr. British administrator. Born in Edinburgh, Feb. 9, 1853, he became a medical man. In 1878 he went out to Kimberley where he practised, and there he made friends with Cecil Rhodes who soon began to employ him.

on political work. In 1891 he was made administrator of Rhodesia, and in 1895 he led the raid on Johannesburg. For this he was tried and put in prison in England, but was soon released. In 1900 he became a member of the legislature of the Cape and from 1904-08 he was Prime Minister. In 1911 he was made a baronet, and in 1913 chairman of the British S. Africa Co. He died in London, Nov. 26, 1917.

Jameson's Raid Raid on Johannesburg in 1895-96. The Britishers in the Transvaal, badly treated by the Boers, planned a rising and obtained promises of help from Cecil Rhodes and his assistant, Dr. Jameson. The rising was postponed, but Jameson with about 500 men entered the Transvaal on Dec. 28, 1895. They were quickly forced to surrender and handed over to the British authorities. The leaders were tried and sentenced to imprisonment, and Parliament appointed a commission to inquire into the matter. Its report censured Rhodes, who lost his status as a privy councillor. The raid left a bad impression and so contributed to the war of 1899-1902.

Jamestown English settlement in the United States, the first of the kind. It is on the James River in Virginia, about 30 m. from its mouth, and dates from 1607. It was the first capital of Virginia and remained so until 1696, when, having been damaged by fire, it fell into decay. The peninsula on which it stood has been converted by the action of the river into an island, and the ruins of the buildings thereon are carefully preserved by the society that owns them. In 1907 the centenary of the foundation was celebrated.

Another Jamestown is the capital of St. Helena. Pop. 2500.

Jammu City of Kashmir and the winter capital of the state. It stands on a tributary of the River Chenab and has railway connection with India. At one time Jammu was the capital of an important state named after it; this is now part of Kashmir. In 1931 there was unrest in the city. Pop. 31,700.

Jamnagar City and seaport of India. It is the capital of the little state of Nawanagar and is 310 m. north-west of Bombay. Pop. 42,000.

Janissaries Corps of Turkish soldiers. Founded in the 14th century, the Janissaries were, until about 1600, mainly Christian boys taken as tribute, and brought up, under strict discipline, in the Mohammedan faith. They made very formidable soldiers and were long the backbone of the Turkish army. After a mutiny in 1826, the corps was abolished.

Jan Mayen Island Island in the Arctic Ocean. It lies between Greenland and Norway and covers 160 sq. m. It is visited by fishermen after seals and whales. Several explorers are said to have discovered the island, one being Jan Mayen, a Dutchman. In 1920 Norway acquired the island, and took possession of it in 1925. An observatory was erected in 1921.

Jannina Town of Greece. On the Lake of Jannina, it is near the frontier of Albania and is the chief town of a district named after it. It was from 1788 to 1818 the headquarters of the rebel chief, Ali Pasha, who was called the Lion of Jannina. The Turks fortified it and in 1913, during the first Balkan War, it was besieged and taken by the Greeks.

During the Great War it was taken by the Allies. Pop. 25,000.

Jansenism Term used for the teaching of Cornelius Jansen. He

was professor of Theology at Louvain, and later Bishop of Ypres. He died May 6, 1638.

Jansen wrote a book called *Augustinus* in which he restated the teaching of St. Augustine on predestination, the fall of man and other matters. It was published in 1640, after his death, and was taken up by a group of religious thinkers, including Pascal, who lived at Port Royal. They called themselves Jansenists. They were then members of the Roman Church, but they incurred the hostility of the Jesuits, and after a time formed a church of their own, adhering to much of the Catholic faith, but rejecting the doctrines of the immaculate conception and papal infallibility. The church still exists in the Netherlands.

Janssen Cornelius. German painter. He was born in London, probably in 1593, of German parents, and studied art in the Netherlands. In 1616 he returned to London and, calling himself Johnson, worked there for some years. He painted Charles I. and other notables. When the Civil War began he went back to Holland, and died, probably at Utrecht, in 1664.

Januarius Saint and martyr. A bishop of Beneventum in the days of Diocletian, he was tortured and killed during that emperor's persecution of the Christians. His body is preserved in his native city of Naples, of which he is the patron saint. His day is Sept. 19.

Janus In Roman mythology an aboriginal spirit of the doorway. This was developed by the Latin people into a double-headed deity. His arch facing east and west in the Forum, commonly called the Temple of Janus, was only closed in time of peace. He gives his name to the first month of the year.

Japan Empire of Asia. It lies off the north-east coast of the continent, from which it is separated by the Sea of Japan. It is composed of five large islands, Honshu, or Hondo, the mainland, Kiushiu, Shikoku, Hokkaido, or Yezo, and Formosa, or Taiwan, over a thousand smaller ones, the peninsula of Korea or Chosen, and the southern half of Sakhalin. The total area is 265,129 sq. m. and the population in 1930 was 90,395,698.

PHYSICAL FEATURES. The islands are volcanic and mountainous, Fujiyama (12,395 ft.) on Honshu, being the most famous mountain. Two Formosan peaks are more lofty. The numerous rivers are all swift, of no great size and of little use for navigation. The climate is diverse, for the empire extends through many degrees of latitude, but is in general wet, with short, hot summers, and long, cold winters. Typhoons are of frequent occurrence and cause great damage, as do earthquakes and tidal waves.

The vegetation is rich and varied, and agriculture is the chief industry of the fertile country, wheat, barley, rice, tobacco and tea being the chief crops. Minerals and metals abound. Manufactures are of increasing importance; in 1928 Japan exported goods to the value of nearly £200,000,000. The largest cities, in order of population, are Osaka, Tokio, Nagoya, Kyoto, the capital, Kobe and Yokohama, all on Honshu. The two last are the chief ports. There is a good railway system.

GOVERNMENT. Japan is ruled by an em-

peror, called sometimes the Mikado, and a cabinet of ministers. There is a parliament, or diet, of two houses, a house of peers and a house of representatives, the latter elected by all adult males. There is no state church, but Shintoism and Buddhism are the chief faiths of the people. Education is compulsory and there is a system of administering justice framed on European models. Japan maintains a large and efficient army recruited by compulsory service. It has a good navy.

The country possesses a good banking system set up in 1872. The standard of currency is the yen, worth about 2s. The metric system of weights and measures is compulsory.

HISTORY. The Japanese empire dates from 660 B.C., and the present ruler claims to be the direct descendant of Jimmu Tenno, its founder. From the 12th to the 19th century it was ruled by Shoguns, but in 1871, after a civil war, the emperor regained his authority and a new era began. Since that time Japan, learning much from Europe, has made enormous advances in every direction and ranks as one of the great countries of the world.

In 1894 Japan was victorious in a struggle with China, and in 1904-05 her armies defeated the Russians in a long and terrible war. An alliance with Britain was concluded, and as an ally Japan entered the war against Germany. She secured a sphere of influence in Manchuria, which in 1931-32 led to trouble with China. The growth of population presents a problem of increasing difficulty.

CULTURE. Japan has a literature of its own, but more notable is its art. A great amount of skill and taste is shown in the pottery produced by her people, whose gifts are also seen in their metal, lacquer and bronze work. For painting they have distinct gifts and the native architecture, in addition to being suited to the peculiar climate and other needs of the country, possesses considerable grace and beauty.

Japanning Process by which various articles of wood, metal and leather are coated with a kind of varnish and usually subjected to heat to harden the surface. In Japan a special lacquer prepared from the juices of certain trees is used. In Great Britain the black Japan consists of asphaltum, copal and linseed oil. The articles treated in this way, chiefly household utensils, are known as japanned ware.

Japheth One of the sons of Noah. He is regarded as the ancestor of the Aryan race. In Gen. x. there is an account of his descendants.

Japonica Name used for certain plants growing in Japan. In Britain gardeners use it for the Japanese quince, *cydonia japonica*, but it will equally well indicate other flowering shrubs, e.g., *skimmia* or *kerria*. The quince, which grows quite easily, bears scarlet flowers. Commercially it denotes pale catechu, or gambier extract, formerly called terra japonica.

Jargon Old French word denoting formlessness, unintelligible talk; a barbarous mixture of discordant languages, e.g., Pidgin English, Chinook jargon. It is the technical phraseology peculiar to a sect, profession, trade, art, science, or system of philosophy; the slang used by certain public schools; or the argot of vagrants and thieves.

Jarnac Town of France, in the department of Charente, 7 m. from

Cognac. It has a trade in wine and brandy. Pop. 4500.

At the **Battle of Jarnac**, March 13, 1569, the Huguenot army was defeated, and its leader, the Prince of Condé, killed.

Jarrah Reddish hardwood. It comes from the mahogany gum tree, *Eucalyptus marginata*, of Australia. Being very hard, it serves for gate posts, railings, piles and railway sleepers. The tree grows in the forests of Western Australia to a height of 150 ft.

Jarrow Borough and river port of Durham. It stands on the Tyne, 4 m. south-east of South Shields, on the L.N.E. Ry. In a mining district, the chief industries are shipbuilding yards and iron works. St. Paul's church, once the church of the monastery associated with the Venerable Bede, contains parts of the original building, and near 18' are some monastic ruins. Pop. (1931) 32,018.

Jasmine Large genus of shrubs of the olive order. They are natives of the warmer regions, especially Asia, but one is S. American. Two varieties grow in English gardens. One bears white flowers in summer and the other, called the winter jasmine, is an evergreen bearing yellow flowers. They do well against walls, trellises and pergolas.

Jason Hero of Greek mythology. The son of Aeson, King of Iolous, he was educated by the centaur Chiron. To get rid of him and his claim to their father's inheritance, his half-brother, Pelias, sent him, at the head of the Argonauts, to find the Golden Fleece. When he returned with it, he and his wife, Medea, by a ruse, secured the death of Pelias and were expelled in consequence. Jason later deserted Medea for Creusa, who was killed by the wronged wife.

Jaspar Henri, Belgian politician. He was born July 28, 1870, and became a lawyer. In 1919 he took a prominent part in the work of restoring the country's industries and the same year he was elected a deputy. He took office as Minister of the Interior and then as Foreign Minister, a post he retained until 1925. Jasper was from the first a firm supporter of the League of Nations and was a member of the Court of International Justice at the Hague. In May, 1926, he became Prime Minister and Minister of the Interior, and he remained at the head of affairs until 1931.

Jasper Impure form of silica. It consists of an intimate mixture of quartz and red and yellow iron oxides or clay, thus rendering the mineral opaque. As an ornamental stone, jasper was known to the Greeks. One variety is deep red with concentric zones, and another has parallel bands of reddish-brown and green.

A ware, invented by Joseph Wedgwood, is known as **Jasper**. It is of uniform colour and is decorated with figures in the form of cameos.

Jassy City of Rumania, on a tributary of the Pruth in the department of Jassy, about 200 m. from Bucharest. It has a trade in cattle, corn, oil and other products. It was at one time the capital of Moldavia, and in 1917-18 was temporarily the capital of Rumania. Pop. 76,000.

Jats People of north-west India. They are tall, dark-skinned, regular-featured and bearded, and speak an Indo-Aryan tongue called Jatki. Found chiefly in the Punjab, Rajputana, United Provinces, Baluchistan and Sindh, they number some 7,000,000 and are

mainly farmers and cattle breeders. They have a good reputation as soldiers.

Jaundice Yellow discoloration of the skin and mucous membranes. It is due to escaped bile elements in the blood and indicates a disturbance of the bile's normal flow into the intestine. It may arise from obstruction, usually denoted by darkened urine. Non-obstructive jaundice may arise from increased destruction of red blood corpuscles, as in pernicious anaemia, bacterial poisoning, as in yellow fever, phosphorus poisoning, or yellow atrophy of the liver. It is also called malignant jaundice. Any of them are indicated by the presence of bile in the stools.

Jaures **Auguste Marie Joseph Jean.** French statesman. Born at Castres, Sept. 3, 1859, he showed himself a brilliant scholar there and in Paris. He became a lecturer at the University of Toulouse. In 1883 he was elected to the Chamber of Deputies, but in 1887 he was defeated and returned to his former post at Toulouse. From 1893-98 he was again a deputy and in 1902 he was once more elected to the Chamber. By this time he had definitely become a socialist, and his abilities soon made him the leader of that party and a figure in the international movement. In 1914 he worked and hoped for peace, but just as war broke out he was murdered, July 31, 1914. With Briand, Jaures founded *L'Humanité*, a journal which he edited until his death.

Java Island of the Dutch East Indies, the third largest of the group. It lies between Borneo and Sumatra and covers some 50,000 sq. m. Its length is 630 m. It is mountainous and volcanic, save in the north-west. Sameru, 12,000 ft., is the highest point. The soil is fertile and there are extensive forests. The crops include coffee, rubber, rice, tea, sugar and various spices. The minerals are oil, tin, coal and salt. The capital is Batavia; Surabaya is the next place in importance, and these two are also the chief ports.

With the rest of the Dutch East Indies, Java is under a governor-general and a council, partly elected and partly nominated. The people are chiefly Mohammedans and Buddhists. The island is densely populated and commercially is the most important of the group. Remains of early man have been found in Java, one of the oldest known human skulls coming from the island. At a later date it had its own civilisation, a Hindu one. Early in the 16th century the Portuguese discovered the island, but it was soon taken by the Dutch. Pop. 37,433,000.

Javelin Kind of throwing and thrusting spear. It was usually about 6 ft. in length, and was used in ancient times by both infantry and cavalry. When thrown it had a range up to about 40 yds. The head of a javelin was either flat or thicker along the centre, and either long, diamond or leaf shaped.

Javelin throwing is an event in certain athletic sports. The record throw was made in 1928 by a Swede, E. Lunquist.

Jaw Bony framework of the mouth in which the teeth are set. The two upper jaw bones lie beneath the cheeks, completing the eye orbits and the nose. The two lower jaw bones unite immovably in the child's second year into a single mandible. The alveolar margins of each jaw contain the tooth sockets.

Jay Family of perching birds related to the crows. The common jay of Great Britain and Europe (*garrulus glandarius*) is

about 14½ ins. long and has blue barred wings and a black-and-white crest. It is a garrulous bird, much persecuted by gamekeepers. Another genus contains the Siberian and Canadian jays, and still others the American blue jays.

John. American statesman. Born in New York, Dec. 12, 1745, he became a lawyer there. In 1777 he was made chief justice of New York, and in 1779 he went to Spain as ambassador. Later he went to Paris where he helped to make the peace treaty with Britain in 1782-83. From 1784 to 1790 he was a secretary of foreign affairs, and from 1790-95 chief justice of the supreme court, and from then until 1801 governor of New York. In 1794 he went to London and arranged a convention (Jay's Treaty) with Great Britain. He died May 17, 1829.

Jazz Name applied to certain American dance music and certain dance types of negro origin. It is an onomatopoeic word aptly describing the noisy, percussive features of the fashionable dance. It also describes bizarre and inharmonious colour decoration.

Jeans **Sir James Hopwood.** English scientist. Born in London, Sept. 11, 1877, he went to Trinity College, Cambridge, and distinguished himself as a mathematician. He became a fellow of Trinity and lecturer in mathematics in the University. From 1905-09 he was professor at Princeton University, and in 1909 he returned to Cambridge as lecturer in applied mathematics. From 1919 to 1929 he was secretary of the Royal Society, and in 1928 he was knighted. Jeans has written books for students of mathematics, but he is best known for his popular expositions of recent scientific theories, as in *The Universe Around Us*; *The Mysterious Universe*; and *The Stars in their Courses*.

Jebb **Sir Richard Claverhouse.** British classical scholar. Born, Aug. 27, 1841, he was educated at Charterhouse School and Trinity College, Cambridge. He was senior classic in 1862 and, elected a fellow of Trinity, he devoted his time to tutorial work there. In 1869 he was made public orator to the university. In 1875 Jebb was chosen Professor of Greek at Glasgow, and in 1889 Regius Professor of Greek at Cambridge. In 1891 he was elected M.P. for the university. His honours were mainly academic, but in 1900 he was knighted and in 1905 was given the Order of Merit. He died Dec. 9, 1905. Jebb published editions of *Sophocles* and wrote *An Introduction to Homer* and *The Attic Orators*. He was also the author of a *Life of Bentley* and a *Primer of Greek Literature*.

Jedburgh Burgh and market town of Roxburghshire, also the county town. It is 56 m. from Edinburgh, on the L.M.S. Rly. The chief industry is the making of tweed.

Jedburgh was one of the most important of the border towns. The old name was Jethart, and the old town was about 4 m. from the present one. A certain kind of battle axo was called the Jethart axe, and Jethart justice was the custom of hanging a man first and trying him afterwards. Pop. 2700.

Jeddah Seaport and town of the Hejaz. Situated on the Red Sea it is 46 m. from Mecca of which it is the port. It exports hides, carpets, coffee and mother-of-pearl. Long a Turkish possession, it was taken by the Hejaz forces in 1916. Pop. 20,000.

Jeffertes **Richard.** English writer. Born in Wiltshire, Nov. 6, 1848, he showed early a great love of nature. For a time he was a reporter, but he gave up this calling in 1867 owing to illness and passed the rest of his days in writing and studying nature. His books had considerable popularity. They include, *The Story of My Heart*, *Amarillis at the Fair* and *Wild Life in a Southern County*. He died, Aug. 14, 1887.

Jefferson **Thomas.** American statesman. Born in Virginia, April 13, 1743. He became a lawyer, and later was one of the leaders of the movement for independence. He helped to draw up the Declaration of Independence in 1776, and in 1779-81 was governor of Virginia. He went to Paris to help to make the peace treaty with Great Britain in 1784, and in 1789 became secretary of state under Washington. He was the leader of the party opposed to the Federalists and on this account lost his position in 1794. In 1797, however, he was elected vice-president and in 1801 president. He was again elected president in 1805, but he retired in 1809. Jefferson died July 4, 1826.

Jeffreys **Lord.** English judge. Born near Wrexham in 1648. George Jeffreys became a barrister. In 1677 he was made serjeant of the city of London, and in 1678 its recorder. He made himself notorious by his attitude towards those accused by Titus Oates and then against Oates himself, but more so by the severity with which he punished those implicated, or said to be implicated, in the rebellion of the Duke of Monmouth, when he sentenced over 300 persons to death in the "bloody assize." He was then Lord Chief Justice and a baron, but was soon made Lord Chancellor. During the reign of James II. he remained in an influential position, but when the king left the country he tried to follow his example. He was caught when disguised as a sailor at Wapping and died in the Tower of London, April 18, 1689.

Jehoiachin King of Judah. A son of Jehoiakim, he succeeded to the throne when 18 years old. He only reigned three months, when Nebuchadnezzar removed him to Babylon at the first captivity. After 37 years Nebuchadnezzar died; his successor released the captive, making him a daily allowance thereafter. He lived 600 B.C.

Jehoiada High priest at Jerusalem under Ahaziah, Athaliah and Joash (2 Kings xi., xii.). Ahaziah's mother, Athaliah, usurped the throne of Israel and sought the life of her grandson, Joash. His sister, Jehoshabea, Jehoiada's wife, concealed her nephew, Joash, in the temple during Athaliah's reign. At the end of six years Jehoiada placed him on the throne and convinced Athaliah's death about 836 B.C.

Jehoiakim King of Judah. He was a son of Josiah and lived about 600 B.C. The Egyptian pharaoh, Necho, appointed him king, changing his name from Eliakim, and making him pay tribute. After Egypt's overthrow at Carchemish in 605 B.C., Judah became subject to Babylon, but three years later Jehoiakim revolted. He repelled various Chaldean and Syrian attacks, but died when Nebuchadnezzar was besieging Jerusalem.

Jehoshaphat King of Judah. A son of Asa, his alliance with Ahab, King of Israel, proved disastrous. He aided Ahab against Benhadad of Syria

at Ramoth-Gilead, but barely escaped with his life. A joint trading venture to Ophir for gold resulted in the fleet's destruction at Ezion-Geber in the Akaba Gulf. His campaigns against Moab and Ammon were more successful, and he effected some internal reforms. He died in 851 B.C.

Jehovah Principal name for the God of Israel. It occurs nearly 7000 times in the Old Testament. The Hebrew word, containing four consonants, YHWH, hence called the tetragrammaton, was deemed too sacred for utterance. The vowels of another word, Adonal, Lord, usually inserted in the text as a hint to use that word, have been read into the tetragrammaton, giving the pronunciation Yahweh, which in English has become Jehovah. According to Ex. iii., the meaning is, *I am that I am*.

Jehu King of Israel. He was a son of Jehoshaphat and became famous as a soldier under Jehoram, or Joram. He was anointed king by order of the prophet Elisha, and ordered to put to death the members of the royal family. He drove his chariot furiously to Jezreel, hence the name Jehu for a driver, and there put to death, not only Joash, but also Ahaziah, King of Judah, and many other persons. He became king (842 B.C.) and reigned until 815. His story is told in 2 Kings, ix., x., and his name is on a tablet of Shalmaneser II., King of Assyria, now in the British Museum.

Jellicoe **Earl.** English admiral. Born Dec. 5, 1859, the son of a captain in the merchant service, John Rushworth Jellicoe entered the navy in 1872. He served in Egypt and China and commanded the naval brigade that took part in the relief of Pekin in 1900, when he was wounded. Previously, in 1893, he had escaped when the *Victoria* was sunk. From 1905-07 he was director of naval ordnance, and 1907-08 second in command of the Atlantic Fleet. He was then knighted and made an admiral. From 1908-10 he was a lord of the admiralty and in charge of naval construction, and in 1910-11 he commanded the Atlantic Fleet. In 1912 he was made second sea lord, a position he held when war broke out.

Jellicoe was then put in charge of the Grand Fleet and he led this at the battle of Jutland, where his strategy has been the subject of much controversy. In 1916 he left the Grand Fleet to become first sea lord and chief of the naval staff, a post he held until 1917. In 1918 he was created a viscount and in 1919 he was awarded £50,000 for his services. He had previously received the Order of Merit. From 1920 to 1924 he was governor of New Zealand, and in 1925 he was made an earl. He has written two books, *The Grand Fleet* and *The Crisis of the Naval War*. See JUTLAND.

Jelly Semi-solid, semi-transparent and elastic substance of the nature of a colloid. Most jellies contain gelatine, many food preparations being of this character. Seaweeds such as agar-agar and carrageen, or Irish moss, also yield jellies, and fruit jellies are made by boiling down fruit juices with sugar, the pectin present producing a gelatinous condition.

Jelly Fish Popular name given to the medusa stage of certain forms of the marine group of organisms. The common jelly fish, *aurilia aurila*, has a shallow umbrella-like body, whose soft translucent substance contains 95 to 99 per cent. of water. From the margin of the pro-

jects a fringe of short tentacles, interrupted by sense organs at intervals. At the centre of the under side of the disc is the projecting mouth bearing four large arms or tentacles. Locomotion in the medusae is by alternately contracting and expanding the disc. Many other forms of medusae exist, some of which are phosphorescent.

Jemappes Town of Belgium. It lies in the province of Hainaut, 4 m. from Mons. Coal is found in the vicinity, and there are glass works. Pop. 14,000.

A battle was fought here in Nov. 6, 1792, between the French and the Austrians. Fighting also took place here during the Great War.

Jena Town of Thuringia, Germany. It stands on the River Saale, 56 m. from Leipzig. Optical and scientific instruments are made. Pop. 52,650.

The university of Jena founded in 1548 is one of the most famous in Germany.

The battle of Jena, one of Napoleon's greatest victories, was fought near here, Oct. 14, 1806.

Jenghiz Khan Mongol emperor. Born in 1162, the son of a petty chieftain, he was proclaimed khan, or emperor, of Mongolia in 1206. He led his armies into China, Turkestan, Persia, India and Russia and included the two first in his vast dominions. He died Aug. 24, 1227, and his empire soon fell to pieces.

Jenner Edward. English physician and discoverer of vaccination. Born at Berkeley, Gloucestershire, May 17, 1749, he was the son of a clergyman. He was apprenticed to a surgeon and later studied under John Hunter in London. He then set up in practice at Berkeley, where for 20 years he investigated the connection between cow pox and small pox. In 1796 he made his first practical experiment in inoculation. It was successful, and the practice spread rapidly in spite of violent opposition. In 1802 and 1806 Jenner was voted £10,000 and £20,000 by Parliament. He died Jan. 24, 1823.

Jephthah (Chieftain and judge of Israel (Judges xi., xii.). Expelled by his Gileadite brethern, he led a band of robbers, but soon returned by invitation to Gilead to repel the Ammonites. He won a complete victory over them. Jephthah had made a vow that, if victorious, he would sacrifice the first thing from his house he met on his return. His own daughter met him and willingly consented to the sacrifice. He reigned for six years and gained victories over the Ephraimites.

Jerboa Sub-family of leaping rodents. They are found in N. Africa and in Russia and Asia. The Egyptian night-flea, burrowing jerboa has a tufted tail, and is about 8 ins. long. It has short five-toed fore limbs, and three-toed hind limbs, six times as long, with which it makes kangaroo-like leaps.

Jeremiah Prophet of the Old Testament, and author of the book called after him. A son of Hilkiah, he was a priest of Anathoth near Jerusalem. His writings covered 40 years, from the time of Josiah to that of Hezekiah and the Exile. His prophecies, at first spoken, were afterwards dictated to his friend Baruch, but the roll was promptly burned by the king, Jehoiakim. A second dictation was supplemented by biographical passages from another hand, and was subsequently revised with an intro-

ductory chapter, the prophecies against foreign nations being rearranged, as in Isaiah. In this form it appears in the Old Testament, where Jeremiah is regarded as one of the four major prophets. It is a continued warning to the people against the teaching of false prophets.

Jericho Town of Palestine. Situated in the valley of the Jordan, 17 m. north-east of Jerusalem and 5 m. north of the Dead Sea, it was the first Canaanite settlement reduced by the Israelites when they entered Palestine, the walls falling at the blast of the Israelite trumpets. Rebuilt by Hiel 500 years later, it sheltered Elisha's college of prophets, and witnessed Zedekiah's last struggle with Babylon before the captivity. Antony presented the region to Cleopatra. Herod built here a palace and a new city, the scene of the New Testament stories of Bartimaeus and Zachaeus, which Vespasian destroyed. Around some medieval monasteries arose a third city, founded by the Crusaders, which still survives. It was captured by the British troops on Feb. 21, 1918.

In 1931 the walls of the city that existed from 1600-1200 B.C. were unearthed. It is surmised that an earthquake destroyed them at the time of Joshua's attack.

Jeritza Maria. Austrian soprano. She was born at Brunn, and made her debut as Elsie in *Lohengrin* at Olmutz in 1909. She was a prime favourite at the Hofoper, Vienna, from 1912-21, after which she repeated her successes in New York as a member of the Metropolitan Opera Company. Her autobiography, *Sunlight and Song*, appeared in 1921.

Jeroboam Name of two kings of Israel. **Jeroboam I.** was a son of Nebat. Solomon's suspicions of his loyalty led him to take refuge in Egypt. At Solomon's death Rehoboam's refusal to moderate his father's despotism caused the ten northern tribes to make Jeroboam, who had taken up their cause, their king. In this way there arose two Jewish kingdoms in Palestine, Israel and Judah. As centres of worship, in opposition to Jerusalem, Jeroboam set up golden calves at Dan and Bethel. He reigned from 937 to 915 B.C.

Jeroboam II. was king, 781 to 740 B.C. He was a son of Joash and is chiefly known for his victories over the Syrians (2 Kings, xiv.).

Jerome Jerome Klapka. English author. Born May 2, 1859, and educated in London, he was for a time a clerk and a teacher. He also did a little acting and in 1885 published *On the Stage and Off*. In 1889 Jerome made his name with *Three Men in a Boat*, a thoroughly humorous story. This was followed by the *Idle Thoughts of an Idle Fellow*. He wrote several novels including, *Paul Kelver* and *The Master of Mrs. Chilvers*. Of his many plays the best known is *The Passing of the Third Floor Back*; others include, *New Lamp for Old* and *The Prude's Progress*. In 1892 Jerome helped to found a magazine, *The Idler*, and from 1893 to 1897 he edited a popular weekly called *To-Day*. He died June 14, 1927.

Jerome Saint and scholar of the Christian church. He was born of Christian parents at Strido on the borders of Dalmatia and Pannonia about 340. He went to Rome to study, and was baptised in 360 by the pope. He then lived as a hermit in the deserts of Syria and studied Hebrew. In 379 he was ordained at Antioch and in 382 began translating the Scriptures into Latin. In 385 he

made his home in Bethlehem where he built a monastery, and where he completed his translation of the Bible (*The Vulgate*). He died Sept. 30, 420; Jerome was the first to distinguish between the canonical and apocryphal books of the Bible.

Jerome of Prague Bohemian reformer. Born at Prague about 1365, he studied there, at Oxford and in Paris, returning to Prague in 1407. At Oxford he came under Wycliffe's influence, and later became associated with John Hus. He was arrested for heresy, and, like Hus, was burned at Constance after a trial, May 30, 1416.

Jersey Earl of. English title borne by the family of Villiers. Sir Edward Villiers was lord chamberlain and secretary of state under William III., who made him Earl of Jersey in 1697. The 5th earl married the granddaughter of Robert Child, the banker, and since then the family name has been Child-Villiers, and each earl has been a partner in Child's Bank. The 7th earl was governor of New South Wales, 1890-93. The earl's oldest son is called Viscount Villiers, or Viscount Grandison, and his seat is Osterley House, Middlesex and Middleton Park, Oxfordshire.

Jersey Largest of the Channel Islands. It is 13 m. from the coast of France and covers 28,700 acres. Its inhabitants are chiefly Norman French by race and speak French, which is the official language. St. Helier is the capital and the chief port. Gorey, Corbiere, St. Owen and St. Brelade are smaller places. Mount Orgueil Castle is an object of historic interest. Jersey is a popular holiday resort with a very equable climate and much picturesque scenery. The soil is fertile. Potatoes, grapes, flowers and tomatoes are grown for the English market, and its breed of cattle is famous. The island is governed by a lieutenant-governor and a bailiff. The legislative body is called the States; some of its members are elected and some are permanent officials. The royal court is the court of law. Pop. 49,700.

A woollen garment worn by boys and girls and also by seamen is called a jersey because such were first worn by the seamen in Jersey.

Jersey City City of New Jersey. It stands on a peninsula between the Hudson River and Newark Bay. It is part of the port of New York, with which it is connected by tunnels and ferries. There is a large shipping trade and the other industries are mainly connected with the preparation of food products, tobacco, chemicals, etc. Pop. (1930) 316,715.

Jerusalem Chief city of Palestine. It is situated 33 m. from Jaffa its port, with which it is connected by railway, and about 15 m. from the Dead Sea. Nearly 4000 ft. above the level of the sea, it was inhabited in the Stone Age and was the stronghold of Urusalin mentioned in the Tel-el-Amarna letters about 1400 B.C. It was captured by David about 1000 B.C., and became the national centre of the Jews. Temples were built by Solomon, Zerubbabel and Herod. At that time included in the Roman world. It witnessed the crucifixion of Christ and was destroyed by Titus in A.D. 70.

In 135 the Emperor Hadrian rebuilt the city, and about 200 years later Constantine the Great built a church on the site of the Holy Sepulchre. This attracted thousands of pilgrims from Europe for whom hospices were

built and for the next 300 years it was a prosperous Christian city. In 637 it was taken by the Arabs, but for a time the pilgrims were welcomed. Later, however, there was a change of policy, and to recover the Holy Places the first crusade was organised. In 1099 Jerusalem was taken and until 1187 was the capital of a Latin kingdom. The Moslems then recovered it, and in 1517 it became a Turkish possession. It remained part of the Turkish realm until British troops (in the Great War) entered it in Dec. 1917.

The modern city is surrounded by walls built in the 16th century and pierced by eight gates. Two hills, Zion and Moriah, associated with events of great interest to the Christian world, are on the south overlooking the valley of Hinnom. Quarters are devoted to the Jews, Armenians, Christians and Mohammedans. The main objects of Christian veneration are the Holy Places. The mosque of Omar is the chief of several mosques. The Walling Wall is sacred to the Jews and there was trouble about it between them and the Mohammedans in 1929. The Roman Catholics, Anglicans and Greek Church have bishops in the city. The British have given it a new water supply and new official buildings. The industries chiefly centre around the providing for the wants of tourists and pilgrims. The Arabs call the city El Kuda, or the sanctuary. The population which was 62,700 in 1922 had increased in 1931 to 90,500.

Jervaulx Hamlet of Yorkshire (N.R.). On the Ure, 13 m. from Ripon, it is noteworthy only for the ruins of a Cistercian monastery, which was founded in 1156 and dissolved at the Reformation. The remains include the ruins of a cruciform church, chapter house and cloisters.

Jervis Bay District of New South Wales, Australia. It lies 82 m. south of Sydney and consists of a harbour and the adjacent land. This covers 28 sq. m. and belongs to the government of the Commonwealth, which bought it in 1907 to serve as the port for Canberra (q.v.).

Jesmond District of Newcastle-upon-Tyne. Formerly a place of pilgrimage called Jesus Mount, it has still the remains of a pilgrimage chapel. Jesmond Den is a public park.

Jesse Father of David, King of Israel and had eight sons. Isaiah's phrase "root of Jesse" suggests Christ's descent from David and Jesse (Matt. i.). This is represented in wood, or stone, or on a window of stained glass, or in painting or embroidery. Jesse trees, or Jesse windows, exist at Abergavenny, Wells, Christchurch, Hants. Dorchester, Oxon and elsewhere.

Jessel Sir George. English lawyer. A Jew, he was born in London, Feb. 13, 1824, and educated at a Jewish school and London University. He became a barrister in 1847 and in 1868 entered parliament as a Liberal. He was solicitor-general, 1871-72, and then became master of the rolls and later president of the court of appeal. He died Mar. 21, 1883. He was the first Jew to become a judge in Great Britain.

Jessop Gilbert Laird. English cricketer. Born May 19, 1874, he was educated at Beccles and Christ's College, Cambridge. He made his reputation as a member of the Gloucestershire county team, and was perhaps the hardest hitter of his day.

He was also a good bowler and a grand fieldman. He played for Cambridge University, in 1899 as captain, for England against Australia, and for the Gentlemen, and was the author of some sensational feats of rapid scoring. He succeeded W. G. Grace as captain of the Gloucestershire team.

Jest Book Collection of witty sayings or humorous stories. During the crusading age raconteurs brought to Europe many tales, greatly enriching the material already available. The earliest extant collection is *A Hundred Merry Tales*, which was utilised by Shakespeare. Changing taste is exemplified by Joe Miller's *Jests*, 1739, and Mark Lemon's *Jest Book*, 1865.

Jester Sayer of witty things and maker of mirth. Jesters were kept in royal and noble households in mediæval times. Originally a minstrel and rumanecor, or *jestes*, he became a merry andrew or buffon privileged, like the court fool, to play pranks and utter pungent truths. He wore a motley dress, bells, ass-eared cowl and bauble. The last official court fool was kept by Charles I. The last nobleman's jester was the Earl of Suffolk's Dicky Pierce who died in 1728.

Jesuits Popular name for the religious order known as the Society of Jesus. It dates from 1543, although some years before that date Ignatius Loyola and four companions had banded themselves together and taken vows. The order soon became very influential.

Whilst retaining its original purpose of converting the heathen, its members mixed very much in political affairs and European history in the 16th and 17th centuries is full of records of their activities in this direction. In England they were prominent in the attacks on Elizabeth's throne and in Germany in the prosecution of war against the Protestants.

Meanwhile other members carried on mission work almost all over the world. Paraguay came under the rule of the order, one of the few instances in the world's history of a theocracy. In North America the labours of the Jesuits are among the most heroic in the annals of missionary work. In China, too, they were very successful.

In the 18th century the political work of the Jesuits made them suspect in several countries, and on several occasions they have come into conflict with the popes. In 1759 they were expelled from Portugal. France and Spain followed this example, and in 1773 the pope suppressed the order. It was not, however, killed, and in 1814 was revived. It has not returned, except in isolated cases, to the political field, but has been, and is, very active in the work of converting the heathen and educating the young.

The head of the order is the General, whose powers are almost absolute. Under him are the Provincials, who are heads of the various provinces. Members pass through a very rigorous training, and ten years must elapse before one can become a full, or professed member. Next in order are the coadjutors, the novitiates and finally the novices. Each member is bound to absolute obedience.

The zeal and learning of the members is unquestioned, but their methods have been sharply criticised. It has been held that they act on the principle that the end justifies the means, but this is denied by their apologists. Pascal's *Provincial Letters* were written against the Jesuits.

In England the Jesuits conduct several schools, the chief being Stonyhurst and Beaumont. In Ireland they have many. Their English headquarters are in Farm St., Belgrave Square, London, S.W. Their chief training college is in Rome where the General lives. The order is about 20,000 strong.

Jesus Christ Person's name of the cent. figure of Christianity. Jesus is the Greek form of the Hebrew Joshua meaning "Jehovah saves." Christ is a Greek title, "anointed," representing the Hebrew Messiah, the promised national deliverer. Apart from S. Paul's indirect allusions, nothing is known of Christ's early life beyond what is contained in the four gospels.

He was born in the stable of an inn at Bethlehem, whither His parents had gone for the census ordered by the Roman government of Palestine. His parents were Jews, Mary and Joseph, the latter a carpenter of Nazareth, but the accepted Christian belief, based on passages in the gospels of S. Matthew and S. Luke, is that Mary was a virgin, a fact that accounts for the sinlessness of Christ. The date was fixed in the 6th century at the year 1, but modern calculations have placed it in 4 B.C. December 25 is kept as the natal day.

After a time the two, with the child, who had been circumcised and presented in the Temple, settled down at Nazareth. There were other children in the household, one view being that these were children of Joseph by another wife. With them Jesus was brought up, but only one event of His boyhood is recorded. When twelve years old He went to Jerusalem with His parents and was found by them arguing with the doctors in the Temple. When old enough He began work as a carpenter and in this occupation He passed His time until He was 30 years old. During this period His reputed father died, and presumably He helped to maintain His mother.

When 30 years old Jesus entered upon His life work. He was baptised by a relative, John, in the Jordan, and passed 40 days in retirement in the wilderness, where He was tempted by the devil. He then gathered around him twelve followers or disciples and spent nearly three years teaching and preaching as the little band wandered about from place to place. Of His utterances many take the form of parables, but the longest recorded is the one known as the Sermon on the Mount. He performed many miracles, mainly deeds of healing, during His ministry. He continually attacked the official classes, known as the Scribes and Pharisees, but the common people heard him gladly. His teaching is fragmentary, but it lays stress upon the love of God to man and contains sayings of infinite wisdom and universal application. He claims for himself, without any hesitation, the position of the Son of God and the interpreter to man of the divine will.

After nearly three years of teaching the officials decided to stop His activities. He was at Jerusalem and had just taken His last supper with His disciples, when, through the agency of one of the twelve, Judas Iscariot, He was seized and tried before Pontius Pilate. He bore himself with dignity and after some hesitation Pilate sentenced him to death. He was then crucified on a hill called Calvary between two thieves, dying on a day since commemorated as Good Friday. His body was moved to a tomb by one Joseph of Arimathea.

Such are the bare facts of Christ's earthly life, but the Christian Church was not built on these alone. It holds that after two days in

the tomb. He rose from the dead and appeared from time to time to various followers. After forty days He made in their presence His final ascension into Heaven. Attempts have been made to explain these occurrences, as well as the miracles, on natural grounds, for it is recognised that the existence of the Christian Church forbids them to be dismissed as mere efforts of the imagination.

Jet Black lustrous form of lignite resembling cannel coal, but harder and blacker. It is light in weight, easily cut, and takes a high polish. It is used for making ornaments and mourning jewellery. Whitby in Yorkshire is the chief English centre of the industry. There the jet is found in shales of the Upper Lias. Jet occurs also in Bohemia, Germany, and at Oviedo in Spain. Imitation jet ornaments are made from ebonite and black glass.

Jetsam In English law, property that is jettisoned, or thrown overboard during a shipwreck, or to lighten a ship in a storm. The loss of goods thus jettisoned is divided between those interested in the vessel and her cargo. This averaging, as it is called, is done by average adjusters.

Jethou Island of the Channel Islands. It lies to the south-west of Horn, and is 4 m. from Guernsey, from which it is governed. It covers 4 acres and is a mile in circumference.

Jevons William Stanley. English logician, economist, and statistician. Born at Liverpool, Sept. 1, 1835, he went to University College, London, in 1851. From 1854 to 1859 he was employed in the mint at Sydney. In 1866 he became professor at Owens College, Manchester, and in 1876 professor of political economy in London University. He was drowned whilst bathing at Hastings, Aug. 13, 1882. Jevons won a reputation as the author of books on logic, especially his *Elementary Lessons in Logic*. He also wrote much on political economy including, *Theory of Political Economy and Money and the Mechanism of Exchange*. His book, *The Coal Question*, attracted great attention when it appeared in 1878.

Jewellery Term applied to articles made of precious metals, gems and other materials for use as personal ornaments. The jeweller's craft is very ancient and was brought to a high pitch of excellence in ancient Egypt and Greece. At the present day the trade is split up into a number of specialised industries. The centre of the diamond cutting industry is at Amsterdam; Paris, Vienna and New York produce novel and inexpensive jewellery; in England, Clerkenwell, London, is noted for its high-class work, while Birmingham makes not only goods of high quality but also cheap and imitation jewellery. In London and Birmingham there are schools for teaching those entering the craft, and associations of employees and employed.

Jewry Land of the Jews, or the district in which they live. In the Middle Ages many cities had a Jewish quarter which was called the Jewry. There are remains of these in London in Old Jewry and Jewry Street, and in Winchester, Leicester, Oxford and other cities. Another name for Jewry is Ghetto.

Jews Race of Semitic origin, now scattered all over the world. The word Jew means a man of Judea, or of Judah. A synonym for it is Hebrew. The early history of the Jews is narrated in the Old Testament, the facts

being supplemented and occasionally corrected by other information and by the results of archaeological research. They appear to have migrated from Mesopotamia to Palestine about 2000 B.C. under the lead of the patriarch, Abraham. Some 500 years later they moved with their flocks into Egypt where, after a time, their lot became one of great hardship. From this, under the guidance of Moses, they escaped and passed 40 years wandering in the wilderness.

Entering Canaan, the modern Palestine, the Jews conquered the tribes there and made their home again in the land they had previously left. They divided it among their twelve tribes named after the sons, or grandsons, of Jacob, also called Israel, one of their patriarchs. The tribe of Levi undertook the duties of the priesthood. The Jews were ruled at first by judges, but later they took a king called Saul. He was succeeded by David and then by Solomon, at which time the Jewish kingdom was clearly one of considerable wealth. At Jerusalem, their capital, Solomon built a magnificent temple which served as the centre of the national life. Before his time the Jews had been almost continually at war with one or other of their neighbours, but his reign was one of comparative peace.

STRIKE AND CAPTIVITY. Soon after the death of Solomon the Jewish kingdom was divided into two, Judah in the south and Israel in the north, and the story of the next few centuries is one of alternate wars and alliances between them and their neighbours. The two kingdoms came to an end in 586 B.C. and 721 B.C. respectively, and for a time the Jews were captives in Babylon. Again they returned to their own land and were under the dominance of the Seleucids. Later the priest kings, called the Maccabees, won freedom for them and made themselves rulers. In 63 B.C. the Jews passed into the orbit of Rome and at the time of Christ, the greatest Jew of all, their land was part of the Roman Empire. In A.D. 70 the Emperor Titus destroyed their temple, and soon they were driven out and scattered, although it proved impossible to stamp out their virile sense of nationality.

THE DISPERSION. Since the dispersion, or diaspora, the Jews have been found in almost every country in the world. In most of them at one time or other they have been persecuted, often with great cruelty. From England they were expelled in the 12th century, but allowed to return in the 17th. In the 19th they were granted equality with other citizens; previously they had been excluded from offices of state and the privileges of citizenship. In some other countries they have also won the rights of citizens, but in a few they still remain without them.

Some, but by no means all, of the hostility that has been shown to them is due to their long association with the trade of money-lending. As moneylenders and bankers they have been unusually successful, and at times it has seemed as if the world's finances have been dominated by them. They have proved themselves adept, too, at other trades in which bargaining plays a considerable part. The Jews have produced quite a number of artistic and other geniuses and the race that includes such diverse names as those of Bergson, Disraeli, Einstein, Heine, Mendelssohn and Spinoza has no light claim to recognition among scholars and artists.

ZIONISM.—In the 19th century there was a movement to get the Jews back to Palestine,

this being called Zionism, and it received an impetus, when, as a result of the World War, Palestine was taken from the Turks. Something has been done to settle Jews therein and to make Jerusalem again their national centre.

At the present time there are 15,000,000 Jews in the world, but there must be many more that number with Jewish blood in their veins. In Great Britain there are about 300,000, but this does not include the many who have, nominally at least, accepted the Christian faith. They live mainly in towns as they have done all over Europe since the dispersion, and in the Middle Ages special quarters called Jewries were set apart for them. They still tend, in London, New York, and other great cities to live together, at least the less wealthy ones. Very few Jews are found in country districts, although colonies of them have been settled on the land in both North and South America.

RELIGION. The religion of the Jews, one of great and elaborate ceremonial, is laid down in the Old Testament and in the sacred book called the Talmud. It is, as it has always been, strongly monotheistic and attaches great importance to the subject of food, some kinds being regarded as unclean. They worship in synagogues where rabbis expound the law. They have their own ceremonial as regards weddings and burials and English law makes provision for this. They have also their own calendar. The new year begins in October, and their year, 5690, was the Christian year 1929-30. They have their own names for the months, and several days, including the day of atonement and the passover, are set aside as fasts, or festivals. They have their own system of weights and measures.

The literary language of the Jews is known as Hebrew and in that they have an extensive literature. The language they speak is called Yiddish, and in it many papers are published.

Jew's Harp Small metal musical instrument. It consists of a steel tongue set in a frame, the neck of which is held with the player's teeth. The tongue is vibrated by the fingers and the pitch and volume of sound is controlled by the breath.

Jezebel. Wife of Ahab, King of Israel. A daughter of Ethbaal, King of Tyre, she introduced Phoenician worship into Israel, persecuted the prophets of Jehovah, treacherously caused Naboth's arrest and stoning, and was destroyed by John. Her name is a synonym for an abandoned and unscrupulous woman (1 Kings, xviii-xxi; 3 Kings ix.; Rev. ii.).

Jezreel City in the plain of Esdraelon, Palestine. Situated on a knoll 11 m. from Nazareth, it was Ahab's capital. Nowadays it is a stone-built village called Zer'in.

Jhansi City of British India. In the United Provinces, it is 60 m. from Gwalior. Protected by a massive wall 4½ m. round and a Maratha fort, it is a trade centre. Pop. 53,200.

Jib Foremost sail in a sailing craft. Triangular, it extends from the jib boom or bowsprit to the foremost head. Beyond it may be a flying jib, and in yachts a balloon jib.

Jibuti Seaport of French Somaliland. Connected by rail with Addis Ababa, it is the chief outlet for Abyssinia's trade, and is a free port with a good harbour.

It is the seat of government for the colony. Its name is sometimes spelled Djibouti. Pop. 9400 of which 540 are white.

Jig Appliance used in ore dressing for the sifting and concentration of the materials. It works on the principle that when particles of the same size and shape are agitated in water, the heavier ones rapidly sink to the bottom. The simplest form of jig or jigger consists of a number of sieves attached to a frame, which by means of a lever are shaken up and down in water. Types of jigs include one with a fixed sieve and a plunger to force water up through it. Also a device for holding in position accurately and tightly, work to be machined.

Jig Lively dance for one or more persons. The Irish jig is the national dance of Ireland. Bach, Handel and their contemporaries included jigs, usually spelled "giguea," in their suites. They are invariably in compound time.

Jihad Religious war of Mohammedans against unbelievers. Two were proclaimed simultaneously in 1877, one in India and the other at Constantinople against the Russians.

Jinn In Arabian mythology, a class of spirits. They are the offspring of fire, and appear in human or animal form. Their influence, if evil, may be averted by talismans. See GENIE.

Joab Hebrew warrior. He was a son of David's sister Zeruiah. He was made commander of the army and won a great reputation as a man of war. He slew Abner, Saul's former captain, Amasa and David's son Absalom, and protested against David's proposed census. By Solomon's command he was executed for conspiring with Adonijah (1 Kings, ii.).

Joachim Joseph. Hungarian violinist. Born near Pörsburg, June 28, 1831, he studied at Budapest, where he appeared in public at the age of eight, at Vienna and Leipzig, where he met Mendelssohn. In 1844 he visited London, where he later performed regularly. He held musical posts at Weimar and Hanover, and in 1869, a year after his appointment as head of a new school of music at Berlin, started his famous string quartet. He died Aug. 15, 1907. Joachim composed a good deal, his most notable work being his *Hungarian Concerto* (for violin and orchestra).

Joan of Arc French heroine. Born at Domrémy, Jan. 6, 1412, she was the daughter of a peasant. Devout and perhaps hysterical, she imagined she heard voices telling her to save France, then under the dominion of the English. In Feb. 1429, she procured an introduction to the uncrowned King Charles VII. By him she was given a troop of soldiers to lead to the relief of Orleans then besieged by the English. Her faith infused new courage into her countrymen and the siege was raised. Other victories were won and in July, 1429, Charles was crowned at Rheims. In 1430, Joan, wounded in a fight, was taken prisoner by the Burgundians and sold to the English. By them she was tried at Rouen, and on May 30, 1431, having been found guilty of sorcery and heresy, was burned. In 1920 she was canonised.

An immense literature has grown up around "the maid," as Joan is often called, and G. B. Shaw has written a play, *Saint Joan of Arc*.

Joash Two kings of the Old Testament, also called Jehoshaphat. One was king

of Israel, 797 to 783 B.C. He was the son and successor of Jehonahaz and recovered the lands conquered by Syria by defeating Hazael's son Benhadad (2 Kings, xiii.-xiv.). Challenged by Amaziah of Judah, he reduced the land to vassalage.

The second was King of Judah from 836 to 797 B.C. A son of Ahaziah, he obtained the throne which had been usurped by Athaliah during a revolt encouraged by Jehoiada (2 Kings xi.-xiv.). He assented to Jehoiada's abolition of the worship of Baal, but reintroduced it after the death of the high priest.

Job Hero of a book of the Old Testament. The book of Job is the supreme achievement of Hebrew poetry. Its prose prologue describes an opulent Arabian emir in the patriarchal age suffering loss of his children and possessions and yet ascribing no wrong to God. The unknown author brings together three neighbouring emirs to discuss these calamities with him, presenting in verse form three cycles of argument. Each comprises six speeches, one by each friend and Job's reply, although no concluding speech is apparently lacking. A younger listener, Elihu, interposes to reconsider whether human suffering is punitive. Job is finally abashed and humbled by God's majestic response. In the epilogue Job is restored to still greater prosperity.

Jocasta In Greek legend the mother of Oedipus and the wife of Laius of Thebes. On her husband's death, she married her own son Oedipus and bore him children, but, on discovering his identity, hanged herself.

Jockey Rider in a horse race. Most jockeys are professionals and begin their career as apprentices in a racing stable. In Great Britain before they can ride in a race they must obtain a licence, either from the Jockey Club or from the National Hunt Committee. Licences to ride are likewise essential in most other countries.

The body that controls racing on the flat in Great Britain is called the **Jockey Club**. It has power to suspend jockeys for infringements of its rules. Its affairs are managed by three stewards and its headquarters are at Newmarket. There are jockey clubs for like purposes in Australia, France, Ireland and other countries.

Jodhpur Native state of Rajputana, India. Also known as Marwar, it is a sandy country traversed by the Luni river, and produces maize, millet and cotton. Its area is 35,066 sq. m., and its ruler is a maharajah. Pop. 1,848,900.

The capital, **Jodhpur**, is a trading centre. Pop. 73,180.

Joel Second of the twelve minor prophets of the Old Testament. A son of Pethuel, he dwelt in Jerusalem. He describes the locust plagues, sometimes regarded as symbolical, and utilises them to foreshadow the final judgment. Peter effectively quoted at Pentecost Joel's promise of the Holy Spirit. The name means *Jehovah is God* and designates also 13 other persons mentioned in the Old Testament.

Joffre Joseph Jacques Césaire, French soldier. Born Jan. 12, 1852, he entered the army in 1870 and saw active service in the Franco-Prussian War. He served too in Indo-China, 1885-88; West Africa, 1894; and Madagascar, 1896-99. In 1911 Joffre was made chief of the staff and in 1914,

as arranged, he took command of the French armies on the western front. He retained that position for over two years in spite of a severe criticism. His plans failed to check the German advance and his own offensives in 1915 were not very successful, but he must be credited with some share in the victory of the Marne, and he retained the affection of the rank and file. In Dec., 1916, he retired, and in 1917 was created Marshal of France, the first for many years. He was then employed on one or two ceremonial missions. Joffre died Jan. 3, 1931.

Johannesburg City of Transvaal. It is on the Rand, 957 ft. from Capetown, and is an important railway junction. Its port is Lourenço Marques. It was founded in 1888 when gold was discovered and is now the largest and most populous city in the land, the municipal area covering 24 sq. m. A university was founded in 1921, but was burnt down in 1929. Johannesburg has a racecourse and facilities for outdoor sports of almost every kind. The *Star* and *The Rand Daily Mail* are published here. The industries are mainly connected with the gold mines, but there is a valuable trade in livestock. It has a broadcasting station (49.2 M., 5 kW.). Pop. (1926, European) 170,741.

John Saint and apostle. A son of Zebedee and Salome, he and his brother James were Galilean fishermen whom Jesus called to be his disciples. James and John were called Boanerges, "sons of thunder," apparently because of their impulsive indignation. They formed with Peter the innermost circle of Christ's followers. John attended the trial of Christ before the Sanhedrim and Pilate, and stood by the Cross. He is commemorated on Dec. 27, and is distinguished as St. John the Evangelist, or St. John the Divine. According to tradition he lived his later life at Ephesus and died at a great age, the last survivor of the apostles. He is regarded as the author of the fourth gospel and of the book of Revelation.

John the Baptist Christian saint. Born in Judea, a son of Zacharias, he was, through his mother, Elizabeth, a cousin of the Virgin Mary. The last of the prophets, he led an ascetic life in the wilderness beyond Jordan, preaching the coming of the Messiah and practising baptism. He baptised Jesus Christ, recognising and acknowledging His identity. He was imprisoned and executed by Herod about A.D. 28. His day is June 24, and many churches are dedicated to him.

John Name of twenty-three popes. **John VIII.**, pope 872-82, combated the Saracens, sought the conversion of the Slavs and crowned as Emperor, first, Charles the Bald, and then Charles the Fat. He died in France, Dec. 16, 882. **John XII.**, pope 955-64, crowned Otto I. Emperor in 952. He was deposed in 963, and died May 14, 964. **John XXII.**, pope 1316-34, made Avignon his residence. He died Dec. 4, 1327. **John XXIII.**, an anti-pope during the Great Schism, was elected by the Pisans, 1470. He convoked, in 1414, the council of Constance which deposed him. He died Dec. 22, 1419. The others were of minor importance.

John King of Bohemia. Born Aug. 10, 1296, the son of the Emperor Henry VII., he became King of Bohemia in 1311. He neglected that country, however, and spent most of his time in France and elsewhere abroad. He earned a high reputation as a

warrior, assisting at various times the Teutonic Knights, the Emperor Louis, and Charles IV. and Philip VI., kings of France. Though becoming blind about 1340, he continued his adventurous life, and was killed at Crécy, Aug. 26, 1346. His son became emperor as Charles IV.

John King of England. He was the youngest of the five sons of Henry II., and was born at Oxford, Dec. 24, 1167. In 1177 he was made lord of Ireland, and in 1185 he visited that country. Like his brothers, he revolted against his father, and when his brother Richard became king in 1189 he acted again in a disloyal fashion. In 1199 he began to reign, being crowned May 26 of that year, and he reigned for 17 years, a disastrous period. A war with France ended in the loss of Normandy; a quarrel with the pope brought on an interdict and a humiliating surrender; the wrath of the barons forced him to sign Magna Charta in 1215. John renewed the war against the barons, who asked Louis of France to come to their aid. In the midst of the struggle the king died at Newark, Oct. 19, 1216.

John's first wife was Isabella, heiress of the Earl of Gloucester. He divorced her in 1200 and married a French princess, also named Isabella. He left two sons, Henry III. and Richard, Earl of Cornwall.

John Name of two kings of France. John I., the posthumous son of Louis X., was seven days old when he died, Nov. 22, 1316.

John II., surnamed the Good, was born in 1319, and succeeded his father, Philip VI., in 1350. He carried on a war with England and was captured by the Black Prince at Poitiers in 1356. He was imprisoned in London from 1356 to 1360, when he was released. His son broke his parole as a hostage in 1363, so the king returned to London, and died there, April 8, 1364.

John King of Poland. A member of the famous family of Sobieski, he was born, June 8, 1624, his father being castellan of Cracow. He won renown as a soldier and was soon in command of the Polish army. In 1674 he made himself king and reigned for over 20 years. Much of his time was occupied in fighting the Turks and in 1676 he regained from them a large part of the Ukraine. His greatest exploit was in 1683 when he led his army to Vienna and won a great victory over the Turks, who were besieging that city. John died June 17, 1696.

John Augustus Edwin. English painter. Born in 1878, he studied art at the Slade School, London, and soon exhibited at the Royal Academy. His figure paintings, such as "Going Down to the Sea" and "The Orange Jacket" attracted much attention, but he is perhaps best known for his portraits. In 1921 John was elected A.R.A. and in 1928 R.A.

John Sir William Goscombe. British sculptor. Born in Cardiff in 1860, he went to London to study art. After a period in Paris, he began to work as a sculptor. His pieces include statues of King Edward VII. at Capetown; the Duke of Devonshire at Eastbourne; Viscount Wolseley in London and the Earl of Minto in Calcutta. He designed memorials to the Marquess of Salisbury in Westminster Abbey and Sir Arthur Sullivan in St. Paul's Cathedral, as well as some war memorials and the regalia and medal used at the investiture of the Prince of Wales at Caernarvon in 1911. He was knighted in that year, having been A.R.A. since 1898 and R.A. since 1909.

John Epistles of. Three letters in the New Testament. They are a homily of innumerable value, setting forth the nature of fellowship with God. The letters are usually regarded as written by S. John the Evangelist, but the second and third are contested by certain scholars who think that he wrote the first only.

John Gospel of. Fourth book of the New Testament. Assuming his readers familiar with the synoptic gospels, the writer designs to prove that Jesus is the Christ, the son of God. No parable in the other gospels is repeated, only one miracle is common to all four gospels and four miracles mentioned are unrecorded elsewhere. The Judaea rather than the Galilean ministry is developed, and one-third of the book comprises the sayings and doings of Christ's last 24 hours. The authorship of the book is attributed to S. John, but some modern scholars think it was written after his death. They date it about 140, but differ as to whether the author was one of John's disciples or a stranger.

John Name of six East Roman emperors. John Cantacuzene, the most notable, was born about 1292, and, rebelling against the infant emperor, John Palaeologus, had himself proclaimed emperor in 1341. Becoming increasingly unpopular, he abdicated and retired to a monastery in 1354. He died in 1383. He was instrumental in giving the Turks, whose aid he invoked, a foothold in Europe.

John Spanish soldier. Usually known as Don John of Austria, he was born in Ratishon, Feb. 24, 1517, the natural son of Charles V. by Barbara Blomberg. He commanded the fleet which smashed the Turks at Lepanto in 1571, and in 1576 became Governor-General of the Netherlands. He died Oct. 1, 1578.

John Bull Personification of England, or of the English. He is usually depicted as a stout, upright man, in a low-crowned hat, tail coat, breeches and riding boots. The name was originated by John Arbuthnot in a series of pamphlets, *Law is a Bottomless Pit* or *the History of John Bull*, 1712. The weekly paper, *John Bull*, was established in 1906.

John of Gaunt See LANCASTER, DUKE OF.

John o' Groat's House Spot on the north coast of Caithness, Scotland. Figuratively, but not actually, the most northerly point of Great Britain, it is 1½ m. West of Duncansby Head, and is the site upon which a Dutchman, Groot, is said, early in the 16th century, to have built a house with eight doors. The reason of the doors was that there could be no question of precedence among the eight members of the family; each had his own door.

Johnson Andrew. American president. Born at Raleigh, North Carolina, Dec. 29, 1808, he first became prominent in Tennessee where he took part in politics and was elected to the legislature. In 1843 he became a member of Congress, and from 1853-57 he was governor of Tennessee. In 1864 he was elected vice-president and, on Lincoln's murder in the next year, he became automatically president. He followed the same policy as his predecessor, endeavouring by conciliation and concession to unite the nation together again. Serious troubles, however, arose with some of his colleagues, and he was

impeached, but was acquitted. In 1875 he was elected a senator, but died on July 31 of the same year.

Johnson Jack. Negro boxer. Born at Galveston, U.S.A. in 1878, he first became known in 1907 by beating Robert Fitzsimmons in two rounds at Philadelphia. He became the world's heavyweight champion in 1908, by beating Tommy Burns, and in 1910 won a celebrated battle at Reno over James J. Jeffries. In 1915 he lost the championship to Jess Willard. He published *Mes Combats* in 1914.

Johnson Samuel. English lexicographer. Born at Lichfield, Sept. 18, 1709, he was the son of a bookseller. He went to the grammar school in the city and then to Pembroke College, Oxford, and acquired a great fund of miscellaneous learning, due rather to a powerful memory than to sustained study. In 1721 he returned home from Oxford and assisted his father for a time, but the business was a poor one, and he became a schoolmaster at Market Bosworth. In 1735 he married a widow, Elizabeth Porter, and opened a school at Kidal, but this was a failure.

In 1737, having already done a little writing, Johnson went to London with his pupil, David Garrick, and began to earn a scanty living by writing for the booksellers. He reported, or rather compiled, speeches in Parliament for *The Gentleman's Magazine* and wrote a poem called *London*. In 1747, having secured financial support, he began to work on his *Dictionary*, which appeared in 1755. He earned a little money, too, during these years by a poem, *The Vanity of Human Wishes*, and by contributing essays to *The Rambler*. In 1759, to pay for his mother's funeral, he wrote a novel, *Rasselas*. In 1752 he lost his wife, whom he dearly loved, and more than once he was in prison for debt.

In 1762 Johnson was granted a pension of £300 a year by the state and thenceforward, in easier circumstances, he wrote little but talked much. His writings during these 22 years were almost confined to *The Lives of the Poets* and *The Journey to the Hebrides*. His time was passed in London, except for an occasional visit to Oxford or elsewhere and one to France, and his favourite haunts were the Club, which he founded in 1764, and the house of Henry Thrale at Streatham, which he frequently visited. In argument he generally disconcerted his opponents by his remarks, which were the incisive expressions of a mind of unusual power, backed by a store of unusual information. He died Dec. 13, 1784, and was buried in Westminster Abbey.

A typical Englishman in many ways, Johnson stands out for his hatred of Scotsmen and his love of London, his delight in talk, his strong Tory opinions, and his religious faith. His friends included Burke, Goldsmith, Reynolds and Windham, but the most devoted of all was James Boswell whose *Life of Johnson* is considered the world's greatest biography. Without the cringing industry of Boswell, who treasured every word spoken by his idol, Johnson might have been forgotten.

There are many memorials to Johnson, and every year his memory is honoured by a meeting of the Johnson Society at Lichfield. The house in Gough Square, London, E.C., in which he lived, is now a museum.

Johnston Sir Harry Hamilton. British administrator, explorer and scientist. He was born June 12, 1858, and

studied art for four years at the Royal Academy. In 1889 he founded the British South African Protectorate. He served as commander-in-chief for the Uganda Protectorate and leader of many scientific expeditions into Central Africa. His published works include valuable books on travel, and also a *History of the British Empire in Africa*. In his retirement he wrote several novels. He died July 31, 1927.

Johnston Thomas. Scottish politician. Born at Kirkintilloch in 1882, he was educated there and at the University of Glasgow. He became a journalist and founded the Socialist organ *Forward*, being also a prominent member of the Town Council of Kirkintilloch and a leader of the Independent Labour Party. In 1922 he was elected Labour M.P. for West Stirlingshire, in 1924 for Dundee, and in 1929 for West Stirlingshire again. In 1920 he was made an Under Secretary for Scotland and in 1931 he became Lord Privy Seal, his special business being to deal with unemployment. He resigned office in Aug. 1931, and lost his seat at the general election in October, 1931.

Johnstone Burgh of Renfrewshire. It stands on the Black Cat in a coal mining district, 10 m. west of Glasgow, and 3 m. south-west of Paisley, on the L.M.S. Rly. It has cotton and paper mills, engineering works and foundries. Pop. (1931) 12,837.

Johore Sultanate and British protectorate of the Malay Peninsula. It lies at the south extremity and is connected by road with the island of Singapore by means of a causeway opened in 1923-24. The sultan is assisted by an executive and a legislative council. A British adviser has, by treaty made in 1914, the right to advise him. Rubber is extensively grown and is the chief export. Johore is the chief town. The area is 7678 sq. m. Pop. 330,300.

Joinery Art of joining and making of fittings of wood for houses, etc. It is associated with carpentry. The commoner woods used by the joiner, comprise deal, pine, oak, mahogany and teak, and the work covers such things as the making and fitting of wood flooring, partitions, doors, window frames and casements, staircases, mouldings, and the special fittings of churches, schools and offices.

Joint In woodwork a piece of wood used to join together two other and usually larger pieces. Joints are of several kinds and bear distinctive names, such as butt joint, dowel joint, mortise joint, tenon joint and housing joint.

Joints are used for one of two reasons. Either the size of the material is insufficient for the purpose, or it is desirable to arrange the various components to the best advantage from the point of view of the direction of the grain of the wood, and the relative proportions of the various pieces. In the former case the joint is often effected by simply gluing both pieces of the material and clamping them together before the glue sets. The second case comprises all the structural joints, such as the tenon and the mortise, in which one part is shaped to fit into a hole made in the other part.

Joint Term in anatomy applied to the articulations between various bones. Joints may be classified as movable or immovable, the latter type being represented by the sutures between the bones of the skull. Of the movable joints, the articulations

between the vertebrae give only a very limited movement. The ball and socket joints of the hips and shoulder allow of a wide play of movement, and the hinge joint of the elbow moves in one plane only. A rotating joint is seen in the head of the radius, and a pivotal articulation in the attachment of the skull to the backbone.

Jointure Provision made by a husband for his wife in the event of his predecease. Strictly, it is an estate settled in joint tenancy on a husband and wife for their lives, and it thus provides for the wife on her husband's death. A widow cannot claim both jointure and dower.

Joinville Jean De, French historian. Born in 1224, he was the head of a noble family and was the lord, or sire, of lands in Champagne. In 1248-52 he accompanied Louis IX. (St. Louis) on crusade. He is remembered for his *Credo*, or confession of faith, 1250, and his *Life of St. Louis*, which makes him one of the three great chroniclers of Mediaeval France. The biography, which represents the king as a great Christian hero, has been translated into English. He died July 11, 1319.

Jókai Maurice. Hungarian writer. Born Feb. 19, 1825, he was educated at Presburg. He adopted the career of a journalist, and in 1863 became editor of a daily paper in Budapest. He mixed, too, in political life, and from 1861 to 1897 was a member of the lower house of the Hungarian legislature. In 1897 he became a member of the upper house. Jókai's claim to fame rests on his novels and stories, many of which have been translated into English. The titles of some of these are, *Midst the Wild Carpathians*, *The Turks in Hungary*, *The New Landlord*, *Eyes Like the Sea*, and *Black Diamonds*. He died in Budapest, May 5, 1904.

Joliette Town of Quebec, Canada. It stands on the Assomption river, 36 m. north of Montreal, on the C.P. and C.N. Rlys. It is an agricultural and lumbering centre, and has quarries and manufactures of flour and paper. Pop. 9100.

Jolly Boat Small boat belonging to a ship. It is manned usually by three or four sailors and is used for odd work. Jolly is a slang naval term applied to a marine.

Jonah Hebrew prophet. He announced to Jeroboam II. forthcoming victories over the Assyrians (2 Kings xiv.). A book of the Old Testament bearing his name professes to narrate an episode in his life. The unknown writer sought to show that divine care was not limited to the chosen race. The incident of the whale, suggested by Persian mythology, symbolised Israel's temporary absorption by Assyria.

Jonathan Name of ten persons mentioned in the Old Testament. The most important was Saul's eldest son, who aided his father in the Michmash campaign to throw off Philistine oppression, and shared his fate at Gilboa. His friendship with David inspired an incomparable elegy from the latter (1 Sam. i.).

Jones Ernest Charles. English writer and Chartist. He was born in Berlin, Jan. 26, 1819, being the son of a soldier who was there in attendance on an English prince. In 1841 he wrote a story, *The Wood Spirit*, and in 1844 he became a barrister. He then joined the Chartists and, having refused a

bequest of £2000 a year to leave it, became one of the leaders of the movement. In consequence of his share in the events of 1848 he was sent to prison for two years. He tried several times to enter Parliament, but in vain. He died Jan. 26, 1869. Jones wrote *The Labourer* and other works of a social character as well as an epic, written in prison, *The Revolt of Hindostan*.

Jones Henry Arthur. English dramatist. Born at Gaudborough, Buckinghamshire, Sept. 28, 1851, his father was a farmer. He was educated at a local grammar school and began life as a clerk in London. He then became a commercial traveller and so remained until his first plays had been produced successfully. These were *A Clerical Error*, produced in London in 1879, and *The Silver King*, 1882. During the next 50 years, Jones wrote a regular succession of dramas. These include *Saints and Sinners*, *The Case of Rebellious Susan*, *The Liars*, *Mrs. Dane's Defence* and *The Pacifist*. He also wrote *Foundations of a National Drama* and other books on the subject. He died Jan. 7, 1929, and afterwards his *Life*, written by his daughter, appeared.

Jones Inigo. English architect. Born in London on July 15, 1573, he started life as a joiner. He studied architecture and came under the patronage of the Earl of Pembroke, who enabled him to visit Italy and France. Jones was the first to introduce pure Renaissance architecture into England, adapting Italian ideas, especially those of Palladio, to English requirements. One of his innovations was the internal staircase. He designed the Banqueting Hall, Whitehall, and Greenwich Hospital. He died June 21, 1632.

Jones John Paul. American sailor. Born in Kirkcudbrightshire, July 6, 1747, his name was John Paul, but later he added that of Jones to it. He went to sea when a boy and after some years settled in Virginia. In 1775, the colonies being at war with Great Britain, he was given command of a ship and for some years he made constant attacks on British shipping. He operated a good deal around the coasts of England and Scotland (which he knew) and was the most feared of all freebooters. His numerous exploits included a landing at Whitby, and the defeat of two English ships off Scarborough. After the end of the war Jones became an admiral in the Russian navy, which he led against the Turks. He died in Paris, July 18, 1792.

Jonquil Hardy perennial bulbous herb of the amaryllis order. The Spanish jonquillo—little rush—so called for its form and narrow half-cylindrical leaves, 8-12 in. long, is primarily *N. jonquilla* which was introduced into Tudor England for its fragrance and colour.

Jonson Ben. English dramatist and poet. Born in London, about 1573, he was educated at Westminster and probably Cambridge, and joined the English army in Flanders. Returning about 1592, he became an actor and hack dramatist for Henslowe, although his first comedy, *Every Man in his Humour*, 1598, was produced by a rival company. In 1603 he wrote a tragedy, *Sejanus*, and in 1604 produced the first of his 30 court masques about which he later quarrelled with Inigo Jones. He published his collected works in 1616 and was granted a pension by James I. He died in 1637 and was buried in Westminster Abbey. The greatest English dramatist after Shakespeare, his plays include *Cynthia's Revels*, *The Poetaster*, *Volpone*, and *Epicene*.

Jonsong Peak of the Himalayas. German mountaineers created a record by ascending to its summit (24,344 ft.) in June, 1930. This record was beaten when, in 1931, an English party climbed Mount Kargat (25,447 ft.).

Joppa Alternative name for Jaffa (q.v.), a seaport of Palestine, north-west of Jerusalem.

Jordan Dorothea, Irish actress. Born in 1772, she first acted in Dublin in 1777. She moved to London in 1785, where she soon gained a great reputation. She acted at Drury Lane until 1809, and made her last appearance at Covent Garden in 1814. Though for 21 years the mistress of William IV., she died in obscurity at St. Cloud, France, July 3, 1816.

Jordan River of Palestine. Rising on Mt. Hermon, three perennial streams unite to flow through Lake Huleh at sea-level down to the Sea of Galilee. Thence the river falls precipitously for 200 m. to the Dead Sea, 1300 ft. below the Mediterranean. Never navigable, it has been throughout history an effective barrier between Palestine and Transjordan. The Jews of old regarded the Jordan as a sacred river and it figures much in Christian imagery. After the Great War a scheme was put forward for using the waters of the river to generate electric power.

Jordanes Historian of the Goths. He dwelt in Moesia in the 6th century, A.D., and was a member of the German tribe of the Alani. He wrote two works, a history from the Creation to his own time, and a history of the Goths, 561.

Jordans Village of Buckinghamshire. It is about 2 m. from Chalfont St. Giles. Here the Society of Friends have their most famous meeting house, and there are other buildings used by them. Adjoining is the burial ground which contains the tomb of William Penn.

Joseph Son of Jacob and Rachel, and Benjamin's elder brother. Born at Haran, his story, told in Genesis xxxvii.-xl., recounts the paternal favouritism and fraternal jealousy which led to his being carried captive to Egypt, where his skill in interpreting dreams made him vizier to the king. He contrived the settlement of his father and brethren in Goshen. His two sons, Ephraim and Manasseh, gave their names to two of the twelve tribes on the return, some centuries later, to Canaan.

Joseph Husband of the Virgin Mary and the foster father of Jesus. The gospels recount his betrothal to Mary and his life as a carpenter at Nazareth; he apparently died before Christ's public ministry began. Our Lord's brothers are usually regarded as half-brothers, Joseph's sons by a former wife. He is commemorated on Mar. 19.

Joseph of Arimathea Rich and influential Jew mentioned in the four gospels. A secret supporter of Christ, he went to Pilate after the crucifixion and asked for the body of Jesus, which he prepared for burial and laid in a tomb. His name occurs in mediæval legends concerning Glastonbury and the Holy Grail.

Joseph Two Roman emperors and German kings. **Joseph I.**, the son of Leopold I., became emperor in 1705. He successfully opposed Louis XIV. in the War of the Spanish Succession. He died April 17, 1711. **Joseph II.**, the eldest son of Maria Theresa, was born Mar. 13, 1741, and became emperor in

1765, on the death of his father, Francis I.; his mother, however, remained the actual ruler until her death in 1780. Joseph then put into effect various reforms, but his home and foreign rule were alike unsuccessful. He was concerned in the partition of Poland in 1772, and fought against Turkey in 1788. He died Feb. 20, 1790, being succeeded by his brother, Leopold II.

Josephine Empress of the French. A daughter of Joseph Tascher de la Pagerie, she was born in Martinique, June 23, 1763. In 1777 she married the Vicomte de Beauharnais and lived in France. In 1794 her husband was put to death, leaving a son, Eugene, and a daughter, Hortense, later Queen of Holland. In 1796 Josephine married Napoleon Bonaparte, and in 1804 was crowned Empress. In 1810 she was divorced. She died May 24, 1814.

Josephus Flavius. Jewish historian. Born in 37 B.C. at Jerusalem, of a family of priests, he joined in the rising of the Jews in A.D. 66 and was taken prisoner, but was afterwards released by the Romans. He was in Jerusalem when it was taken, but afterwards lived in Rome where he was befriended by three emperors. He died about 100.

Josephus lives because of his books on the history of the Jews, works of very high value. As translated, their titles are *The Jewish War* and *Antiquities of the Jews*. He also wrote an autobiography and a defence of Judaism against Apion. They have been translated into English by G. W. Whiston, 1737.

Joshua Successor of Moses as leader of the Israelites into Canaan. He was a son of Nun and of the tribe of Ephraim. He was one of those sent to spy out the land of Canaan, and was closely associated with Moses during the wanderings in the wilderness. He took Jericho, defeated many of the native kings and divided the land among the tribes. He died at Mt. Ephraim at the age of 110.

The Book of Joshua, the sixth book of the Old Testament, describes the exploits of Joshua. The first 12 chapters tell how Canaan was conquered. The next nine describe the division of the land among the tribes, and the last three tell of Joshua's death and burial.

Josiah King of Judah. He was a son of Amon, whom he succeeded when eight years old. He discovered in the temple a law book, apparently part of Deuteronomy, or an allied work. This led him to make drastic reforms in religious matters. When the Egyptian King Necho crossed Palestine on his Assyrian campaign Josiah opposed him and was killed at Megiddo. He reigned from 639 to 608 B.C.

Joss The popular name for a Chinese idol. The temple where it is kept is called a joss-house. A joss-stick is a piece of fragrant tinder mixed with clay, to be burned as incense.

Joubert Petrus Jacobus. Boer soldier. Born in Cape Colony, Jan. 20, 1831, he became prominent during the Boer War of 1880-81 when, as commander-in-chief, he defeated the British at Laing's Nek and Majuba Hill. When war broke out in 1899, Joubert was named commander-in-chief, but on March 27, 1900, he died at Pretoria.

Joule James Prescott. English physicist. Born at Salford, Dec. 24, 1818, he became a student of chemistry. Taking up the subjects of electricity and magnetism, he developed theories that attracted attention

His great work was to investigate the problems of heat and energy, and in this field his discoveries were of immense importance. He died Oct. 11, 1889.

The **joule**, named after him, is a unit of electrical work or energy, practically equivalent to the work done, or heat generated, in maintaining for one second a current of one ampere against a resistance of one ohm; equal to 10,000,000 ergs.

Journal Daily record. The word is variously employed: for a daily newspaper, e.g., *Le Journal*, a French paper founded in 1892; for a book used in double entry book-keeping; a record of the proceedings of a society, or public body; and for a personal diary. In engineering, it is that part of a revolving shaft in contact with the bearings.

Journalism Profession or trade of writing and preparing material for newspapers and other periodicals. Something of the kind has existed in most civilised countries since the invention of printing, but modern journalism only dates from the 19th century, when the mass of the people learned to read, although Defoe has been called the first journalist. It is now an important and influential profession.

In Great Britain societies exist to protect the interests of the journalist. They are the Institute of Journalists, which was established in 1884, and the National Union of Journalists. There is also a Society of Women Journalists in London. The universities of London and Bristol provide courses in journalism and there is a School of Journalism at Columbia University, New York. The Press Club is a journalistic centre in London, and in 1931 steps were taken to form a London livery company for those connected with newspapers.

JOURNALISM AS A CAREER. Journalism has been defined as "The writing and presentation of news, comment and opinion in newspapers or other periodical publications." It is the profession for those who can look at life and the events of the day, and write of them in such a manner as to interest, amuse, or instruct the public. It is a profession which should be entered with the eyes wide open, for the pitfalls are many, and the competition is intense.

The safest method of ensuring a steady income is to obtain a post on a newspaper or periodical, and here the openings for women are steadily increasing; most papers require at least one woman on their permanent staff, some are staffed almost exclusively by women. A London paper, however, is averse to taking on its staff any one who has not been trained on a provincial paper, while many provincial papers recruit their staffs from boys and girls who have just left school, and train them on the paper, beginning with office work. Every paper, however, is constantly on the look-out for fresh talent.

It is nearly always necessary to have short-hand in the early stages of journalism. Practical experience provides the best, and indeed the only adequate training for a successful career in journalism.

The staff journalist on a London daily usually receives a salary something in the region of seven to ten guineas a week. The editorial staff is usually higher paid (nine guineas per week is the minimum except on the financial and sporting papers and agencies) and leader writers and editors receive anything upwards from £1500 a year. The payment on a pro-

vincial paper usually begins at three guineas a week (editorial minimum, £4 7s. 6d.), and rises to seven.

Free-Lance Journalism is precarious, and for the people who handle "news" and "features" the opportunities are strictly limited. The outlook is more favourable in fiction writing (which cannot legitimately be described as journalism) and in certain specialised branches, but the competition is severe from the large numbers of people to whom such writing is a spare-time occupation. In this kind of work a woman can compete on equal terms with her men colleagues, while she has the monopoly of certain subjects. Payment varies from 15s. per thousand words to a very much higher figure, according to the value of the article and the reputation of the writer.

It is advisable for the practising journalist to become a member of either The National Union of Journalists (15 Chancery Lane, London, W.C.2) or The Institute of Journalists, (2 and 4 Tudor Street, London, E.C.4).

Jove Alternative name for Jupiter (*Jovis*), the chief god of Roman mythology.

Jovian Roman emperor. He was born in Moesia, about 331, and was captain of the imperial bodyguard during the Persian campaign. On Julian's death he was proclaimed emperor, June, 363, when he signed a humiliating peace with Persia. He died in Bithynia, Feb., 364.

Jowett Benjamin. English scholar. Born April 15, 1817, he was educated at St. Paul's School and Balliol College, Oxford, of which in 1838 he was elected fellow. He was ordained and worked at Balliol as a tutor for 28 years. In 1855 he was appointed Professor of Greek, and in 1870 was chosen Master of Balliol. He retained that position until his death, Oct. 1, 1892.

Jowitt Sir William Allen. English lawyer. Born in 1885, the son of a clergyman, he was educated at Marlborough and New College, Oxford. In 1909 he became a barrister and in 1922 he was elected Liberal M.P. for the Hartlepool. He lost his seat in 1921, but in 1929 he was returned to Parliament by Preston. He then joined the Labour party, was made Attorney-General and was defeated. He continued in the same office when the national government was formed in 1931, but failed to secure a seat in the House of Commons, returned to his practice at the Bar.

Joyce James. Irish writer. Born in Dublin, Feb. 2, 1882, he was educated at Clongowes and graduated at the Royal University. He wrote some verses, a play and a volume of short stories, *The Dubliners*, before he became widely known as the author of the extraordinary novel *Ulysses*, which, owing to its nature, was published abroad in Paris, not in England.

Juan Fernandez Group of islands in the S. Pacific, some 100 m. from Valparaiso. They belong to Chile. Of the three volcanic islands, only the largest, Mas-a-tierra, is inhabited. It was discovered about 1565 by Juan Fernandez, and was inhabited, 1701-09, by Alexander Selkirk, which gave Defoe the subject for Robinson Crusoe. It was occupied by Spaniards in 1750, and later was a Chilean penal station until 1913. A wireless station is on the island.

Jubaland Province of Italian Somaliland. It lies south of the Juba River, and was a British possession, as part of Kenya, until ceded to Italy in 1925. The

country is largely unexplored and its climate tropical. Kismayu is the capital and chief port. Its area is 35,000 sq. m. Pop. 100,000.

The **Juba River** rises in Abyssinia and, after a course of some 1000 m., empties into the Indian Ocean. It is navigable for small vessels for 400 m.

Jubilee Celebration of fifty years. The real jubilee is a Jewish festival commemorating the Exodus. Proclaimed by a *jobel*, or ram's horn, on the Day of Atonement every fiftieth year, slaves were freed, land left untilled, and certain alienated property restored (Lev. xxv.). It lasted for a full year, but was rarely observed. Pope Boniface VIII. instituted a jubilee year in 1300.

Nowadays the 50th anniversary of any event is a jubilee, e.g., of Queen Victoria's reign. A 60th anniversary is called a diamond jubilee.

The **Book of Jubilee**, or Little Genesis, was an apocryphal work of the 2nd century A.C. paraphrasing in 49-year periods the world's history from the Creation to the lawgiving on Sinai.

Judah Fourth son of Jacob and Leah. Born at Haran, he superseded his elder brothers, and the most powerful of Israel's twelve tribes bore his name. After the death of Solomon, Judah was the name of one of the two kingdoms into which Palestine was divided.

Judaism The system of Jewish religious beliefs, practices and rites. Judaism is based on an ethical monotheism. At an early date the Jews abandoned polytheism for a belief in the unity and spirituality of God, linking together morality and religion. During the post-exilic period Judaism developed into that system of rigid obedience to the Law and priestly sacrificial worship, which existed in the days of Christ. The roots of Christianity are fixed deep in Judaism, and Paul, the greatest of Christian apostles, was a "Hebrew of the Hebrews," who never lost his sense of the greatness of his nation's spiritual heritage.

Judas Name of several biblical persons. They include (1) A disciple of Christ, "not Iscariot," perhaps Lebbaeus or Thaddeus, and "son or brother of James" (Luke vi.). (2) The Galilean, who led a revolt (Acts v.). (3) Judas Maccabaeus, Mattathias' eldest son, who gained for the Jews religious, but not political, independence. He died in 161 B.C. (1 Macc. iii.-ix.).

Judas Iscariot One of Christ's twelve disciples who afterwards betrayed him. A son of Simon of Kerioth, apparently Hazer, he was the only apostle who was not a Galilean. He acted as purse-bearer to the group. The account of his remorse and suicide in Matthew xxvii. differs from the one in Acts i.

Judas Tree Small tree of the leguminous order (*Cercis siliquastrum*). It is a native of the Mediterranean region. Growing irregularly, its branches produce abundantly fascicles of rosy-purple pea-like flowers, rarely white, before the smooth kidney-shaped leaves fully appear. The flowers impart an acid flavour to salads. Mediaeval woodcuts represent Judas Iscariot as suspended from its branches.

Jude Epistle of. Book of the New Testament. Its superscription attributes it to a brother of James, commonly identified with our Lord's brother. Some think, however, that it was written at a later date by another

writer, also called Jude. It borrows from the Apocrypha, and most of it is practically contained in the second epistle of Peter. It consists of one chapter denouncing false teaching.

Judea District in the south of Palestine and west of the Jordan. Its boundaries towards Samaria and Idumea were ill-defined and variable. In the New Testament the word is used loosely for all western Palestine.

Judge High legal official who hears cases and tries criminals. Every judicial system has its judges, who are invariably lawyers of considerable experience. Each is attached to a court, and together they form the judiciary under a chief judge.

In England, as elsewhere, judges are of several grades. The highest are the Lord Chancellor and the law lords who sit in the House of Lords. Then come the lords justices who form the court of appeal, and then the judges of the high court, who are knighted on appointment and receive salaries of £1000 a year. They must be barristers of at least 10 years' standing. The judges of the court of appeal are recruited from the judges of the high court and receive a somewhat higher salary. All are entitled to pensions after serving for 15 years. They are appointed by the Lord Chancellor and are addressed as my lord. As representatives of the sovereign, they are received in state when they go on circuit, and it is high treason to attack them.

There are also in England county court judges, one to each circuit. These receive salaries of £1800 a year and are addressed as your honour. They must be barristers of at least seven years' standing and are appointed by the Lord Chancellor.

In Scotland judges are attached to the two houses of the court of session. Those who sit in the inner house, or court of appeal, are given the style of lord. In both parts of Ireland the courts are staffed by judges on the English model.

The **Judges of the Bible** were the men who ruled over the Jews before Saul was chosen king. They existed for about 450 years; among them were Gideon and Samson.

The **Judge-Advocate-General** is an official of the British army. He acts in an advisory capacity to the crown on matters of military law, especially those concerning courts martial, all of which he, or one of his assistants, attends. The office dates from the 17th century. He is assisted by a deputy judge-advocate-general. Similar duties are performed for the navy by the judge-advocate of the fleet.

Judges Book of. Book of the Old Testament. With its companion *Ruth* it is found between the Joshua story of Israel's settlement in Canaan and the books of Samuel and Kings concerning the monarchy. It comprises: (1) An introductory survey of the conquest. (2) A narrative showing how the people's transgression led to foreign oppression and how, to end this, warrior-judges, notably Gideon, Jephthah and Samson, arose at intervals. (3) Certain episodes in the history of Israel and stories about various judges and other personages. Its authorship is unknown, but it was probably written in the 7th century B.C.

Judgment In law a decision of a court in civil cases. It is delivered by the presiding judge and is carried out by officers of the court. In the House of Lords

and the judicial committee of the privy council each judge reads his own judgment, the decision being that of the majority.

A judgment summons is a summons taken out against one who will not pay a bill. The creditor must prove that the debtor can pay, and the judge will then make an order for the payment of a certain sum, usually by instalment. If this is not paid the creditors can apply for the debtor to be sent to prison. Technically he is sent to prison for contempt of court, not for failure to pay a debt.

Judgment The Last. The idea that God will come to the world for judgment is found in the Old Testament prophets. In the New Testament the same belief is represented in some places in dramatic fashion by means of apocalyptic imagery. Such passages are generally regarded as having symbolic value in the proclamation of the spiritual truth, that men's ultimate fate will be determined by their relation to Jesus Christ.

Judicial Committee Committee of the privy council that acts as the supreme court of appeal from the courts of the British Empire outside Great Britain and in ecclesiastical cases within Great Britain. Its members are the Lord Chancellor, the Lord Chief Justice, former Lord Chancellors and other peers who have held high judicial office and are members of the privy council, as well as any persons who are, or have been, judges of the supreme courts in any of the British Dominions.

The committee was set up in 1833, but its present constitution dates from 1928. The judges need not be unanimous in their decisions; a majority is sufficient. They sit without robes and their judgments take the form of recommendations to the sovereign. The committee's authority is not recognised by the Irish Free State.

Judicial Separation Term used in English law for a separation of husband and wife ordered by the High Court of Justice. It can be granted for adultery, cruelty or desertion for not less than two years. It is more serious than an ordinary separation order which can be made by a magistrate.

Judith Heroine of the book of Judith. This fictional work, which is in the Apocrypha, purports to narrate an episode in Jewish history recalling that of Jael. Judith, a wealthy widow, visited the besieging Assyrian camp at Bethulia and feasted with the general Holofernes. She then made him drunk and treacherously beheaded him. The theme inspired a vigorous early English poem of the 8th-10th century. This is preserved in the MS. which also contains Beowulf.

Juggernaut Name, meaning "Lord of the World," of the Hindu god, Vishnu, as worshipped at Puri in Orissa. The idol is kept in a temple in that city, but on certain festivals it is taken out and dragged in a huge car through the streets. The ceremony takes several days. Fanatics sometimes throw themselves under the wheels of the car and are killed, so giving rise to the sinister associations of the word.

Jugurtha King of Numidia. His uncle Micipsa bequeathed the kingdom to his two sons and to Jugurtha who murdered both and became sole monarch. Defying Rome and resorting largely to bribery, he was taken by Marius, exhibited in his

Roman triumph, and finally killed in 104 B.C. Sallust wrote his life.

Jujube Name of a small tree, *Zizyphus vulgaris*, a native of China, but now grown in Mediterranean countries. The plant bears leathery leaves with thorny stipules and small greenish flowers followed by red or black sub-acid fleshy fruits. These were used formerly for flavouring the lozenges known as jujubes.

Ju-Jutsu or Jiu-jitsu Japanese of offence and defence without method of personal encounter. It was at first a secret art practised by the nobility, but later it developed into a national system of physical culture for both sexes, especially in the army, navy and police.

Early in the 20th century schools arose in Great Britain, Europe and the United States, usually under Japanese exponents, and demonstrations of jiu-jitsu were given in music halls and other public places. The system was studied by the London police and other forces. Using anatomical knowledge the defendant seeks, by certain locks, strangle holds and twists, to divert the adversary's muscular strength to his undoing.

Julian Roman emperor. Born in Constantinople in 331, he was the nephew of Constantine the Great and was named Flavius Claudius Julianus. He studied in Athens and later abandoned Christianity, whence his name of Julian the Apostate. In 355 his cousin, the Emperor Constantine, made him joint ruler, married him to his sister, Helena, and put him in charge of Gaul. There he won several victories and gained the high regard of his troops who, in 360, revolted and proclaimed him emperor. Owing to the death of Constantine in 361 he secured the throne without trouble, but he only reigned for two years. He tried to restore the pagan religion and deprived the Church of its special privileges, although he tolerated the Christians. In 363 he organised a campaign against the Persians. Having invaded their land he was mortally wounded and died June 26, 363.

Julian Calendar Calendar as revised and modified by Julius Caesar in 46 B.C. It was in use in Western Europe until A.D. 1752, having been revised further by Pope Gregory XIII. in 1582. The Julian Year was of 365½ days with a leap year of 366 days every fourth year, and the intervening three years of 365 days.

Julienne Clear soup containing herbs and vegetables cut into long narrow shreds. It was named in the 18th century after Julien, a French caterer in Boston, U.S.A.

Julius Name of three popes. **Julius I.** was Pope from 337 to 352. **Julius II.** was born in Italy, Dec. 5, 1443, of the family of Della Rovera. His uncle, Sixtus IV., made him a cardinal in 1471 and he lived the life of a wealthy Italian prince, taking part in warfare and encouraging literature and art. In 1503 he succeeded Pius II. as Pope and reigned for 10 years. As a temporal ruler he was successful. He won back much of the land taken from the Church and his greatest exploits were the formation of leagues that humiliated Venice and France. He died in Rome, Feb. 20, 1513. The portrait of Julius by Raphael is one of the world's masterpieces. **Julius III.** was Pope from 1550 to 1555.

Jullundur Town of India, also spelt Jalandhar. It is 47 m. from

Amritsar and was once the capital of a Rajput kingdom. It is now the chief town of a district in which wheat is grown. Pop. 71,000.

Jumna River of India. It rises in the Himalayas, and, fed from mountain snows and joined by numerous tributaries, flows through the United Provinces to join the Ganges at Allahabad. Delhi, Agra and Mathra are on its banks; its length is 850 m.

Jumping Branch of athletics. It is a feature at almost all athletic contests, including the Olympic Games. In modern times the long and high jumps are the chief forms. E. F. Hamm created a record in the former with 25 ft. 11½ in. in 1928; H. M. Osborne, in a high jump, reached 6 ft. 8½ in. in 1927. There is also a pole jump, but this is less popular.

Jumping Hare South African rodent. Called by the Boers the springhans (*Pedetes capensis*), it averages 2 ft. in length with rather longer tail, and is a burrowing night feeder. It owes its name to its ability to jump; sometimes it covers as much as 30 ft. at a single bound and rarely less than 6 ft.

Jumping Mouse Genus of small rodent found in North America and China. It lives in forests, feeds upon seeds and leaves, and makes its home in clefts in the rocks. About 3 in. long, its jumping powers are remarkable, sometimes reaching 10 ft. It belongs to the genus *Zapus*.

Jumping Shrew Family of African insectivorous mammals also called elephant shrews. Allied to Asiatic tree-shrews, they are mainly nocturnal. Their long hind legs make kangaroo-like leaps.

Juneau Capital of Alaska. In the S.E. of the country, on Gastineau Channel. It was founded in 1880 as Harrisburg, and superseded Sitka as the capital in 1906. The centre of a gold mining region, it is also a fishing, lumbering and trading centre. Pop. 3100.

Jung Karl Swiss psychologist. Born at Basle, July 26, 1875, he was one of Freud's leading pupils until 1911 and shares the latter's views as to the significance of unconscious mental conflict and repression. His conception of the unconscious is, however, wider and more vital than that of Freud, for does he give to sex quite the same importance.

Jungfrau Mountain in the Bernese Oberland, Switzerland. It is on the border between Berne and Valais and near the town of Interlaken. It was first climbed in 1811 by the Meyer brothers. It is 13,670 ft. high and is a favourite peak for climbers.

Jungle Rank and tangled vegetation, large and small, sometimes almost impenetrable, or the more or less swampy region so covered. The Anglo-Indian word, first denoting such regions as the terai beneath the lower Himalayas, nowadays means any marshy thicket growth in tropical lands. Jungle often harbours wild animals, and red, grey and other jungle fowl in India and S.E. Asia. Australian mound-birds and brush-turkeys are also called jungle-fowl.

Juniper Genus of evergreen trees or bushes. They grow in the temperate and colder parts of the northern hemisphere and bear fruit like berries. The common juniper grows freely in Great Britain.

To do well it needs a moist, deep loam and a sunny position.

The fruit of the juniper is used to flavour gin and as a diuretic in medicine. The wood is hard and smells of turpentine.

Junius Letters of. Series of political letters of unknown authorship. They appeared in *The Public Advertiser* between 1767 and 1772, over the name of Junius and were published as a book in the latter year. They were attacks on the ministers of the day, including the Dukes of Bedford and Grafton and even the king, George III. The printer, H. S. Woodfall, was prosecuted for printing them, but was acquitted.

The letters aroused extraordinary interest and were written by one who knew a good deal about affairs of state, both within and without, and was able to express himself in an arresting and forcible way. The secret of the authorship has never been discovered, though Sir Philip Francis is regarded as their most probable writer.

Junk Type of sailing vessel used by the Chinese and Japanese. It has a high stern and forecabin, usually with three masts having square sails of matting.

The term junk is applied to old ropes and cordage on ships, used for making oakum and mats, also for lumber and the salt meat formerly supplied to ships.

Junker Name used for the landowners in Prussia and North Germany and their influence, coupled with a good deal of arrogance, made them very influential before 1914. The merchant princes of Danzig were also called junkers, the name being perpetuated there in the building called the Junkerhof. The word means a young man.

Junket Dish consisting of sweetened milk thickened with rennet into a custard. It is sometimes flavoured with brandy or liqueur and sprinkled with grated nutmeg. Devonshire junkets are served with clotted cream. In olden days merry-making at a feast or picnic was called junketing.

Juno Chief Roman goddess. Worshipped by women at all life's crises, she was identified, especially in literature, with the Greek Hera, as such becoming Jupiter's sister and wife, the mother of Mars and queen of heaven. As every Roman had his genius, so every woman had her Juno; at childbirth she became Juno Lucina.

Junta Spanish word for a council. In Spain juntas were formed to manage the various departments of state and there was a supreme junta of the Inquisition. In 1806 a junta was formed to organise resistance against the French. In England the word suggests corruption, or at least inefficiency.

Jupiter Largest of the outer planets of the solar system. It has a diameter eleven times that of the earth, and has the form of an oblate spheroid, that is, owing to the rapidity of its axial rotation there is a flattening at the poles with a bulging outwards in the equatorial region. Its mean distance from the sun is 483 million miles, and it has a year equal to twelve of our years and a day of 9 hr. 56 min. Of its nine satellites four are about the size of the moon, and were the first celestial objects discovered with the telescope by Galileo.

Jupiter Chief deity of the Romans, also called Jove. He was the son of Saturn and Rhea and the husband and brother

of Juno. As the chief of the gods and the god of thunder, rain and storm, he was given many auxiliary names, such as Pluvius and Tonans. He was also regarded as the god of justice and hospitality. He was specially revered in Rome itself where his worship was celebrated with great splendour in the Capitol and elsewhere. The equivalent of the Greek Zeus, he was regarded as armed with thunderbolts and attended by eagles.

Jura

Island of the Hebrides. Part of the county of Argyllshire, it is separated from the mainland by the Sound of Jura, and has an area of 160 sq. m. A rugged and bleak island, it has hills, the Paps of Jura, rising to 2500 ft. Cattle and sheep are reared, and there are deer forests. Pop. 600. The Sound of Jura is 21 m. long.

Jura

European mountain range. It separates the Rhine and Rhône valleys and forms part of the frontier between France and Switzerland. About 150 m. long and 40 m. broad, the mountains have an average height of about 2400 ft., with peaks of over 5000 ft. Jura is also the name of a department of France.

Jurassic

One of the larger geological systems of rocks. It derives its name from the Jura Mountains and comes between the Triassic and Cretaceous systems. The succession of strata consists of an alternation of clays and limestones with sometimes beds of sand. The system is divided into four groups; the Lias at the base with lower, middle and upper Volite above. It was the age of giant reptiles such as the ichthyosaurs, plesiosaurs, etc., and of the earliest bird, archæopteryx.

Jurat

Literally a person who is acting under an oath. It was, and to some extent is still, used for certain officials. Some of the members of the legislatures of the Channel Islands are known as jurats, and formerly the aldermen of the Cinque Ports were similarly designated.

Jurisprudence

Science of law. It deals, not with any particular kind of law, or the law of any particular country, but with its general principles. A great deal has been written on the subject, which was clarified by John Austin in his *Lecture on Jurisprudence*. Later writers include Sir A. Maine, Sir P. Vinogradoff and T. E. Holland in England, while much valuable work has been done by French, German and American writers such as Savigny and Story. At Oxford there is an honours school of jurisprudence and there are professors and lecturers on the subject at most of the universities. See LAW.

Jury

In England a body of persons chosen to give a verdict in trials of importance, both civil and criminal. Trial by jury is a very old custom in England and something of the kind existed before the Norman Conquest, although the early juries were witnesses rather than judges, they declared the law, decided the sentence.

To-day there are three kinds of jury. The grand jury consists of any number from 12 to 23, it is summoned at assizes and its business is to examine the charges against the various accused persons and decide if they are to go to trial. They do this by returning what is called a true bill, unless, as rarely happens, they decide there is no case against a prisoner. The petty jury consists of 12 persons and these, having heard the case, are responsible

for the verdict. It must be unanimous; if it is not, the jury is discharged and a fresh one called. In Scotland a jury can return a verdict of non-proven; in England it must be either guilty or not guilty. In civil cases the jury decides on the amount of damages, if any. Each jury has a foreman who speaks for it. A special jury, which is comprised of persons with a fairly high property qualification, is a form of the ordinary jury. The third kind of jury is the coroner's jury. At one time there was a jury for every inquest, but since 1927 it has not been necessary to have one except in cases of death by violence.

Any man or woman, between the ages of 21 and 60, with certain exemptions, such as doctors and clergymen, is liable to be called to serve on a jury and must serve unless a good reason for absence is given. A list of persons eligible is prepared by the local authorities and from this the juries are picked as required. In important cases the greatest care is taken to keep the jury from outside influences, and anyone attempting to bribe a juror can be heavily punished. Jurors receive a small fee.

Justice of the Peace

In Great Britain a man or woman appointed to keep the peace and often called magistrate. These justices are appointed by the Lord Chancellor for the various counties and such cities and boroughs as have a commission of the peace. Their duties include holding police courts, where minor offenders are tried, and forming in the counties the courts of quarter sessions. Oaths and depositions can also be taken before them and they can sign warrants.

The justices first appeared in the 13th century and since 1919 women have been eligible. Mayors and chairmen of urban district councils are justices by virtue of their office. All others are appointed for life.

Justiciar

In mediæval England the chief officer of state. There were justiciars in England from the time of William I. to that of Henry III., their office originally corresponding with that of the modern Lord Chief Justice. The Scottish supreme court for criminal cases is known as the High Court of Justiciary.

Justiciary

Term sometimes used for the judges and the courts of law as a whole. In Scotland the High Court of Justiciary is the official name for the supreme court of criminal jurisdiction.

Justification

Word used in law and theology. In English law a person can plead justification to a charge of libel or slander; he can also do so if charged with violence. He must prove in the former case that the alleged libel or slander was true and in the latter case that his life, or that of his wife or child, was in danger. If charged with a criminal libel he must prove that the words were published for the public benefit.

In theology the phrase justification by faith is used. It means that the believer can by faith be freed from the consequences of his sin.

Justin

Two Eastern Roman Emperors. Justin, or Justinus I., was a soldier, probably a Goth, and was proclaimed emperor on the death of Anastasius in 518. He died in 527.

Justin II. succeeded his uncle, Justinian I., in 565. He became subject to recurrent fits of insanity after 574 and appointed Tiberius as joint ruler. In his reign war broke out with

Persia, and the barbarians overran North Italy and the Danubian and Carpathian provinces. He died Sept. 26, 578.

Justinian Name of two Roman emperors. Justinian I. was born May 11, 483, in Illyria. He was the son of a peasant, but also a nephew of the Emperor Justin I. who educated him. In 527 he became emperor, and he reigned for nearly 40 years at Constantinople. His reign was marked by the victories of Belisarius and Narses over the Persians, Vandals and Ostrogoths, the result being that a great area in Europe, Africa and Asia, lost under previous emperors, was recovered. The emperor died Nov. 14, 565. His wife was the Empress Theodora.

Justinian is chiefly remembered, however, for the codification of Roman law, which he organised. This consists, not only of the code, but of a *Digest* or *Pandect* and the *Institutes*, or explanations of the law. Its influence on the development of the legal systems of Europe can hardly be exaggerated.

Justinian II. was emperor from 685 to 695 and again from 705 to 711. During the intervening 10 years he was an exile, the result of a revolution. In 711 there was another rising and he was beheaded.

Justin Martyr Christian writer. Born in Samaria, about A.D. 100, of Greek parentage, he spent much time in the study of philosophy. He became a Christian and wrote an *Apologia* of the Christian faith, which was followed by a second one. According to tradition he was martyred about 165.

Jute Cordage and textile fibre obtained from two annual species of the genus *Corchorus*. This grows to a height of 10 to 15 ft. in parts of East Bengal, Orissa and Bihar. The fibre consists of the hard bast between the wood and cortex and is separated by steeping the stems in water for a time.

Jute fibre is weaker than flax or hemp, but having a silky lustre, fine texture, and good spinning power, it is used for cheap tapestries and carpets, also bags, packing canvas, cordage, etc. The chief centres of the jute industry are Calcutta and Dupdee, where there are large jute mills.

Jutes Teutonic tribe. Their country of origin is obscure, but it may have been Jutland. Invading England in the 5th century, they settled in Kent and the Isle of Wight and probably parts of Hampshire. They are mentioned by Bede.

Jutland Mainland province of Denmark. It forms a peninsula and has a very broken coastline. Aarhus is the largest town and the Guden the longest river. It is an agricultural area. The original home of the Jutes, it was made part of Denmark in the 10th century.

Jutland Battle of. Naval battle fought May 31 and June 1, 1916, between the British and the German fleets. On May 30 the British fleet, hearing the Germans were coming out of their harbours, put to sea. Sir D. Beatty with a force of six battle cruisers and four battleships in support, put out from Rosyth, and Sir John Jellicoe with 28 battleships and three battle cruisers from Scapa Flow. Each was attended by destroyers, submarines and other auxiliary craft.

On the afternoon of the 31st, the British battle cruisers met the German battle cruisers, both being in advance of the main fleets.

There was a sharp encounter in which two British battle cruisers, *Indefatigable* and *Queen Mary*, were destroyed. *Tiger* and *Lion* were badly damaged, as were the *Lutnow* and two other German ships. Towards 5 o'clock Beatty, hearing of the advance of the main German fleet, turned to draw the enemy on to the British fleet, which was steaming towards him. The main fleets came into touch about 6 o'clock, but the great ships were never seriously engaged and only one of them, *Mc. Donough*, was hit. There was fighting among the smaller ones in which the British suffered further losses. *Invincible*, a battle cruiser, was blown up and a cruiser squadron was badly damaged, *Defence* being sunk. Some of the German ships were shattered, but they were, for one reason or other, much more difficult to sink. At the approach of dark the British battle-ships drew off and prepared to renew the attack on the following day. There were torpedo attacks during the night, but when morning came it was found that the German fleet had escaped and was within the shelter of its minefields.

The result of the battle, however, was not satisfactory from the British point of view. With a much stronger force, 149 ships against 110, including 28 dreadnought battleships against 16, the losses of the British were heavier than those of the Germans.

Juvenal Roman satirist. Little is known of his life, except that he was born about A.D. 60, served in the army and visited Britain and Egypt. He died in 140.

Juvenal is noted for his *Satires*, perhaps the most famous of their kind. Sixteen of them are extant. They paint in vivid colours the manners and morals of Rome in his time, but the picture of wickedness is now considered to be greatly exaggerated. They contain many familiar quotations, have been imitated by Johnson and Dryden, and many English translations have been made.

Juvenile Courts Separate children's courts set up by the Children Act of 1908. They were established for the hearing of charges against juveniles, such courts to sit in a different room or at a different time from that of the ordinary courts. The probation system figures prominently and beneficially in the work of these courts. In 1927 they dealt with 25,478 cases.

Juvenile Offender In English law a young person, i.e., under the age of 16, who has been arrested on some charge. By the Children's Act, 1908, such young people must be dealt with in such a way that there is no risk of their contamination by contact with adult criminals. This is done by their trial in special courts for children and by their detention, if necessary, in Borstal institutions. No juvenile offender can be sentenced to penal servitude.

Juxon William. English prelate. Born at Chichester, in 1582 he was educated at the Merchant Taylors' School, London and Oxford. He became a member of the Inner Temple, and in 1621 was made president of a law college, St. John's. In 1627 he was chosen Dean of Worcester and in 1633 Bishop of London. From 1735 to 1741 he was 1st Lord Treasurer and, during the Civil War, he was one of the most trusted advisers of Charles I. He attended the king at his trial and was with him to the end on the scaffold. In 1649 he was made Archbishop of Canterbury and died June 4, 1663.

